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PREPAREDNESS

THE AMERICAN *Versus* THE MILITARY PROGRAMME

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BY

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PREFACE

THIS book has been written by one who is neither a military nor a naval expert. It has taken, therefore, the standards of adequacy and efficiency as laid down by the military and naval experts themselves, and has used them as a measurement of the adequacy and efficiency of the programmes for preparedness which are now being spread before the American people.

The innumerable facts and figures upon which it is based have been taken, in so far as is possible, from the official documents.

The book is by no means purely or chiefly negative. It seeks not only to show the utter inadequacy of the programmes for military preparedness, and the evils of a genuinely adequate military programme; but also to state concisely the parts of the American programme for preparedness, their support by reason and experience, and the inevitable and insuperable obstacle which each and all of them find in the military programme.

It endeavors to give full credit to the genuine and laudable desire of most of the military prepareders "to defend this country"; but it attempts to determine precisely what a "defensive war," against a first-rate power, in Twentieth Century warfare, would mean, and precisely what kind of a military programme would be truly adequate for it. Finally, it endeavors to prove to the countless Americans who loathe the thought of militarism, but who see no other adequate means of defense, that there *is* another means which is as definite, as practicable, as adequate and as American, as it is justified by reason and tried and proven by experience.

SWARTHMORE COLLEGE. W. I. H.

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I

THE CAMPAIGN FOR PREPAREDNESS

ITS ORIGIN AND GROWTH

ONE of the most striking phenomena in the public life of our country to-day is the campaign which is well under way for the achievement of "preparedness" or "adequate armaments." In universality and intensity it rivals the campaigns in behalf of Free Silver and the extension of Slavery to the Territories.

It is a campaign in which the elements of hatred, fear, humor, legend, fiction, "poetry," politics, profits, "patriotism," the press, the pulpit, the school-master, the employer, the laborer, individual initiative, and organized activities are playing a fervent, fervid and at times ferocious part.

The issue is by no means a new one, even in our own peaceful Republic; but the European War has cast its baleful shadow across the Atlantic, and beneath this shadow the "preparedness" campaign in our own country has sprung up like a mushroom in the night.

For more than a dozen years,—ever since our petty war with Spain in 1898 was supposed to have made us one of the "Great Powers,"—a comparatively small coterie of military experts have been demanding armaments adequate to our new rôle of a world power. During this same period,—ever since the world entered at the first Hague Conference of 1899 upon its new era of internationalism,—a group of men imbued with this Twentieth Century spirit have been combatting the demand for "adequate armament" as opposed to real and adequate justice.

DENUNCIATION AND RIDICULE OF THE PACIFISTS

The latter group of men, who have accepted without complaint the name of "pacifists," have recently assumed importance as the prime obstacle to "preparedness," and upon them have been poured out the vials of wrath and hatred of those who advocate that policy.

The great protagonist of "preparedness" has denounced the pacifists with characteristic superlativeness. From the Golden Gate of Sunset to the piney woods of Maine, he has bespattered the Continent, befogged the atmosphere, and castigated the pacifists with such names as professional pacificists, peace-prattlers, poltroons, men with mean souls, undesirable citizens, peace-at-any-price men, mollycoddles, college sissies, Chinafiers, Belgiumizers, cowards, traitors! He has declared them to be "beyond the pale of real and true Americanism"; "puerile, peace-loving mollycoddles who cannot stand before the Liberty Bell without a blush of shame"; "men who ought to move to China,—not worth defending,—endowed with minds that dwell only in the realm of shadow and of sham." He has declared that "at best they are an unlovely body of men, and taken as a whole are probably the most undesirable citizens that this country contains." He has solemnly warned them that "they must be made to understand that they have got to render whatever service the country demands. They must be made to submit to training in doing their duty. Then if, in the event of war, they prove unfit to fight, at any rate they can be made to dig trenches and kitchen sinks, or to do whatever else a debauch of indulgence in professional pacificism has left them fit to do."

This is the voice of an ex-President of the American Republic; but the words and spirit are those of a Prussian War Lord. It is natural, therefore, that he should resent any competition in the use of the word fist, mailed or otherwise, by the pac*ifists,* and should have insisted

on their very name bringing them closer to the class of "college sissies" by being changed to paci*ficists*. The consistency with which he has put the bellow into bellumist, also, has stirred up emulation among the like-minded, and they have launched countless missiles by way of the public press, which bid fair to rival the original Big Stick itself. For example, one of them begins a long letter to the *New York Tribune* with the persuasive words: "I am sick and tired of the fearsome tommy-rot that a few sheep-hearted persons are writing and talking to prevent preparedness." But *ex uno disce omnes.*

"FRIGHTFULNESS"

To this campaign of ridicule and hatred, there has been added one of fear. The "frightfulness" of the European War has been brought home in every possible way to the imaginations of the American people in order to induce them to "prepare." United States attachés, newspaper correspondents, and travellers of many kinds, coming fresh from the "war zone," have poured countless articles and books upon the American public to prove, in the words of one of them, that "for the United States, there is one lesson written across Europe in seven letters of blood and flame: PREPARE!"

Retired officers of the United States army, and engineers and inventors of various kind and degree, have published articles and books which prove to a nicety such theses as this, that "one hundred thousand English, Germans, or Japanese, equipped with the longest and best modern field artillery, with plenty of ammunition and supply trains, air-scouts and engineer corps, could, in our present defenseless condition, march through this country as Xenophon's 10,000 marched through ancient Persia." Very definite details are supplied with such warnings; for example: "An army of 100,000 men could land (if our navy were evaded or destroyed) in

Long Island or New Jersey, and go anywhere it might see fit, live off the country, capture our big cities, and hold us up for ransom."

The newly elected president of the Navy League, in his inaugural address, declared: "Modern conditions of transportation, it is calculated by the best authorities, would make it possible for one of these European fighting organizations to land 300,000 soldiers, fully equipped for aggressive warfare, on our shores within fifteen days after war had been declared. In three months they could have a million fully equipped men here to make a Belgium of our unprepared country."

A distinguished inventor of means of preparedness declares: "An enemy could do and would do to us what the Germans did to Belgium, only we would not be able to give as good an account of ourselves as the brave Belgians did. They were better prepared than we are or could be on short notice. We would become a nation of hoboes at once just as the Belgians have become."

A congressman from the State of Massachusetts gave voice to the prevalent panic when he deplored what seemed to him a fact, namely, that our country is "like a great fat dowager, covered with jewels, out amongst the wicked world, without a single policeman within six miles of her." And in putting his speeches on preparedness through the United States Printing Office, preparatory to franking them in wholesale throughout the country, this congressman appropriately gave as their title, "Safety First," and "Where are our Guns?"

"The preparedness" which was worked up in England a few years ago by means of a play, "An Englishman's Home," is being advocated in America by means of a moving-picture play, entitled "A Battle Cry of Peace." All the melodramatic power, mechanical ingenuity and scenic splendor, for which the moving-picture show has become justly famous, have been placed behind this pernicious drama and have made of it a terrible provocative

of fear, and a blind, unreasoning demand for "preparedness."

The president of the American Society of Aeronautical Engineers is reported to have added to the prevailing panic, as follows: "Records in Washington show that a certain European nation could land in the United States, within forty-eight days, 750,000 men with 250,000 horses and munitions sufficient for a three months' campaign, with half the transports available before the present war. . . . Furthermore, similar records show that a nation on the Pacific could land 350,000 troops on the Pacific Coast, within sixty-one days with half its transports."

Another typical "scare" is the following, which comes to us from Boston: "The vast lesson that the present war teaches us is that the ocean has been annihilated. The United States is more alluring as a prize and less competent to defend itself than Belgium was. The loot Germany can take from us is prodigious. She recognizes her moral right to take it, for with her, power determines morality. She has not a scrap of any other kind of conscience than might-conscience. Let her be victor in this war, and what happens? The British, French and Italian fleets, partly destroyed and partly captured. Out of the wreck, Germany emerges complete mistress of the seas, with a fleet several times greater than ours and an army of millions of trained, armed men, thirsting for more worlds to conquer, in order to repair the German nation's colossal war losses. To steam across the Atlantic and not only smash us, but take and garrison and permanently own us, will be child's play and warriors' joy for her. And she will do it as surely as she conquers the Allies. Moreover, the chances are now ten to one that she will conquer the Allies, unless the American Republic interferes to prevent it. Our policy of neutrality is, therefore, a policy of imbecility and death."

Still another form taken by the prevalent "frightful-

ness" comes from a New York novelist and newspaperman, who writes of it as follows:

"In case of war with Germany, the United States would be utterly paralyzed in a week. German secret propaganda is spread through our whole system like poison, and it would cause trouble in time of war. Telegraph wires would be cut, railroads crippled and bridges blown up. I could take you to restaurants throughout the country where the German keepers are clipping out every anti-German article in the papers and mailing them to some headquarters."

In "The Passport," a book written by this last alarmist, there is a chapter describing the drilling of German troops in America; and two weeks ago a Washington dispatch reported that military drills were going on secretly in the German turnvereins of America.

"Furthermore, as a marine writer for newspapers," the same author continues, "I have often scrutinized the piers of the German lines in Hoboken. The piers are ridiculously massive for their purpose; incidentally, they command the city of New York. That there is some secret purpose behind many things the Germans do is a commonplace after what we have seen in Europe."

Not only has the frightfulness of the European War been utilized to fan the flames of preparedness in our country, but almost every attempt to settle international disputes by peaceful means has been used as a bellows for the same purpose. Raucous voices have been insistently raised to declare that the attempted mediation in Mexican affairs by the A. B. C. powers in South America, in coöperation with the United States, would infallibly have succeeded if we had been properly prepared. Blatant voices have shouted that Germany would have yielded at once to our diplomatic representations on the *Lusitania* and *Arabic*, if we had only possessed an "adequate" army and navy.

Even the movements for constructive peace in the fu-

ture have been eagerly utilized by the prepareders to prove the necessity of greatly increasing our armaments. For example, the League to Enforce Peace, which began its career as a genuinely pacific and Twentieth Century institution for the settlement of international disputes, has been side-tracked and run back into the twilight of militarism. The chairman of its executive committee, for instance, is convinced that our country, to perform its share of work in "enforcing peace," must increase its army to 500,000 men; and the Navy League has joyously welcomed this so-called Peace League as a prime argument for the great and indefinite increase of our navy. "If this proposal succeeds," says one of its leading advocates, "it will mean a departure from the traditional policy of the United States in the avoiding of entangling foreign alliances and will commit us to a new policy and a new relation with the world, which will increase enormously both our obligations and our need of strength on the seas."

LITERARY AND NEWSPAPER AIDS

Fiction, legend, "poetry," oratory, have all been summoned to arouse us to a realizing sense of our unpreparedness. "War novels," revealing and solving the problem of unpreparedness, are climbing into the class of the "six best sellers." Magazine story-tellers are supplying thrills by narrating the "Capture of New York" and the "Conquest of America" by the allied powers victorious in the European War. All the patriotic hymns, from "Yankee Doodle" to "The Star-Spangled Banner," are being utilized and parodied for the purpose of prodding the prostrate public into proper preparedness. "Be a Rikki-Tikki-Tavi, not a Chuchundra," is the key-note of countless articles in one grave journal of pessimistic outlook; "Don't fight wildcats with soft, soapy words," is the key-note of editorials in other journals which trail their funereal length across the Continent.

The preparedness campaign has been a bonanza for newspaper humorists, as well. The columns devoted to "Spicy Sayings" or "Sparkling Sallies" are replete with scintillations of wit at the expense of America as "a nation of mollycoddles and poltroons, with a wishbone but no back-bone, confronting its foes in the Battleship Piffle." Cartloads of cartoons, conceived with all the cleverness for which American cartoonists are famous, have been dumped into the mill-race of the daily and weekly papers with the hope that they may strike home through the American love of humor to American "patriotism." The "peace-palaverer" is usually the butt of these cartoons; but Belgium's fate is a close rival in their devoted attentions.

Every patriotic celebration has been made the occasion for perfervid orations in advocacy of preparedness; as, for example, Decoration Day, the Fourth of July, the erection of memorials to the "Mexican Martyrs" of 1914.

Countless interviews are published, also, in which "prominent officials," or "highly intelligent citizens" of the great cities, are given an opportunity to purvey such advice as the following bit from one, "the father of sons available for military service." "Take Mexico and keep it," is the advice of this metropolitan Napoleon of finance; for, he continues, "this task would expose our unpreparedness for a conflict with a great power, and it would be a great boon to us by creating a well-equipped army of 300,000 veteran soldiers who would become the nucleus of future millions, and thus result in organizing in the United States a military system which would be a framework of a real nation."

THE ORGANIZED CAMPAIGN

All this sporadic propaganda is not permitted to go to waste or expend itself in mere "hot air." For the express purpose of systematizing it, organizing it, and bringing it

to bear in places where it will produce results, at least three national societies have been organized. Other patriotic organizations of the various sons and daughters are by no means debarred from increasing the crop and participating in the harvest of preparedness, and they are eagerly availing themselves of the opportunity. For example, at a national conference on preparedness, held in Washington in October, 1915, there were represented the Grand Army of the Republic, the Army and Navy Union, the Union Veteran Legion, the United Spanish War Veterans, the Sons of Veterans, the National Rifle Association, the Southern Commercial Congress, the National Defense League, the Navy League, and various others. But the three societies referred to have no other *raison d'être* than to reveal our unpreparedness and achieve our entire preparedness. The Navy League, the American Legion, and the National Security League are the societies referred to.

The Navy League

The Navy League, emulating its prototype in Germany, devotes itself to anything and everything which promises to increase the welfare of our navy. Assuming the major premise that the navy's size is equivalent to its welfare, and the minor premise that the navy's welfare is identical with the country's welfare, it draws the conclusion that whatever increases the money spent upon and the attention paid to the navy is patriotic, and therefore deserving of the League's financial, social and political support. It has not become so much of a factor in American politics and life as is its prototype in Prussia's more congenial clime; but patience, effort and the present unparalleled demand for preparedness will yet work wonders for the League, and it is certainly not neglecting to exert its powers along these lines.

It has organized in States, Departments and Nation, with field secretaries in each to further its objects in

every community, and with a special director of its work in Washington, charged with the specific duty of keeping an eye on Congress and commending or condemning its action in regard to the Navy. It employs lecturers to describe our unpreparedness and to build up the membership and work of the League; and it is noteworthy that these lectures are given preferably at "parlor meetings" of the "élite" society in Washington, New York, Philadelphia and the large cities in which the real "Four Hundred" are to be found. Moving-picture lectures, also, on "Our Navy and What it Means," etc., are resorted to; and the visit of a fleet of war-ships to cities or towns is utilized for the holding of "Monster Mass Meetings," addressed by the foremost exponents of the Big Stick, and for other means of "whooping it up" for the Navy.

Its principal headquarters are in New York City, the center of the country's wealth and commerce, and it was an appropriate key-note which was struck by the new president of the League in his recent inaugural address. At the end of the present war, he is reported to have said, this country is going to have practically the entire stock of gold in the world and an enormously increased commerce; history has proven that treaties and moral obligations are nothing to nations that covet; hence we should have an army of 1,000,000 soldiers, preferably *boys* between eighteen and twenty-one years of age; and we should build up a vast navy *at once* and pay for it by annual instalments! This worthy man finds in the war experience of Belgium, Great Britain and Russia a justification of his demands; but apparently he has found in the war no reason for thinking that a vast navy built up at once might become obsolescent at once and entirely obsolete soon; nor has he found in American history or ideals anything that would deprecate the building up of an army of one million men,—or boys.

The Women's Section of the Navy League

A Women's Section of the Navy League was formed on the Fourth of July, 1915, and within two months it boasted of having secured 15,000 members, which is 4,000 more than the male membership of the League. This result was achieved by a thorough organization. Twenty-five women were selected in each State and invited to become members of a National Committee and to aid in organizing State committees and branches of the League in each community. One professed object of these branches and committees, as of the corresponding ones among the men, is to "build up public sentiment which shall influence the Members of Congress to vote for a strong navy as a means of guaranteeing that, no matter what international storms of war may rage abroad, no foreign invading force may ever carry the horrors of war over the borders of this country."

With characteristic feminine enthusiasm, the Women's Section of the League has planned a country-wide, as well as State and local, movement to influence Congress, and to create public sentiment and support by means of "great patriotic pageants" and similar devices. Before Congress assembles in December, 1915, the Women's Section expects to secure 100,000 members. In pursuit of this object, it is making appeals to women to become members like that of the Registrar of the Daughters of the American Revolution, who argues: "It is time that the women of this country freed themselves of the stigma of standing for peace at any price, lack of preparedness, and national cowardice, which has been attached to them because certain women have been misled by grape-juice, anti-American peace propagandists into throwing in their own lot with them."

A pledge, called the "Women's Patriotic Pledge," is taken by new members, which does not bind them to avoid the use of grape-juice, or to partake of any stronger

beverage, but which reads as follows: "I pledge myself to think, talk and work for patriotism, Americanism, and sufficient national defenses to keep the horrors of war far from America's homes and shores forever. In these days of world strife and peril, I will strive to do my share to awaken our nation and our law-makers to the dangers of our present undefended condition so that we may continue to dwell in peace and prosperity and not have to mourn States desolated by war within our own borders. In so far as I am able, I will make my home a center of American ideals and patriotism and endeavor to teach the children in my care to cherish and revere our country and its history and to uphold its honor and fair repute in their generation."

All this fervid activity on the part of the Women's Section of the Navy League is defended by the women themselves on the ground that "American women should be in the forefront of the new movement toward nationalism and national defense; for they have most to gain by the establishment of a navy which shall be able to keep war forever far from our shores."

Before Congress meets, also, about the middle of November, the Women's Section is planning to hold a conference on national defense, "the first of its kind ever held." The Memorial Continental Hall, headquarters of the Daughters of the American Revolution in Washington, is to be placed at the disposal of the conference, and the national committee appointed to take charge of the conference is composed of "the leading social lights" in the large cities. One of these writes, in accepting her appointment:

"I do not need a new pledge, as I have been preaching against our foolish unpreparedness for many years. I am glad that women are at last awake to its menace and hope they will now help to undo the great harm they have caused by their short-sighted peace propaganda in the past."

In further illustration of the way in which some women, at least, have awakened to their responsibility for preparedness, may be mentioned an organization recently formed in Washington under the name of "The Sponsors of the Navy." The membership, which now numbers more than one hundred, includes only "the maids and matrons who have had the honor of christening a warship." As emphasizing the exclusive character of this society, it has published an edition *de luxe* of a book entitled "Ships of the United States Navy and Their Sponsors." This is illustrated by "fifty handsome half-tone pictures of christening parties," etc.; it is limited to 500 copies, and is sold to members and "a limited number of subscribers outside of the membership" for five dollars a copy.

The American Legion

The American Legion is the second of the prominent societies formed for emphasizing and eliminating our unpreparedness. It has arisen to meet the demand that all America's men and resources available for "preparedness" shall be inventoried, classified and kept on tap in case of "need." Ex-soldiers, ex-athletes, men skilled in every science or art that could conceivably be utilized for military purposes, are being catalogued by the Legion in its self-imposed task of annual and perennial census-taking. The list of trades or professions whose members could be of service in aiding its campaign for preparedness is a long and elaborate one, including at present more than seventy; and it aspires to include "the entire reserve force of the nation." It claims to have enrolled more than 50,000 men within the first six months of its existence. So rapid was its growth and so conspicuous was its campaign that it bade fair to take the place that the Order of the Cincinnati held at its inception in public fear and suspicion. But these fears were modified when it was explained that the Legion was not designed

to organize or assemble a body of men uniformed, armed and equipped for military service; but only to procure a list of men available in war-time.

The very rapid increase of the American Legion, and its large public prominence, is a striking illustration of the influence of the war in Europe on the minds of the American people, and of the way in which public sentiment is being exploited. The inception of the Legion was in a few back pages of a fifteen-cent magazine.[1] Attracting the attention of Major-General Leonard Wood, he saw in it a possibility of furthering his military aspirations for the United States, and he gave it his powerful support. The next step was to secure the coöperation of Colonel Theodore Roosevelt, who was evidently not oblivious to the possible political importance of the Legion, and accepted the chairmanship of its executive committee. By means of the clarion calls sent forth by this last-named official, and the enthusiastic aid afforded by General Wood and his aide-de-camp, the Legion is growing apace and aspires to reach soon its 300,000 membership mark.

Aside from the rapid growth and quasi-official relations of the Legion, thoughtful critics have deprecated the oath or pledge which its new members are invited to take, namely, "to serve my country, and to serve her as she says, not as I say." Again, although the scientific, and not the military, aspects of the Legion have been consistently advertised, one of its purposes is to enroll, in a special branch or department, men who have had training and service in the regular army or navy. This branch is designed to supply the country with "the first reserve, which, in the event of war, could be quickly assembled and put in readiness to follow to the front the first line, consisting of the regular army and the militia."

The novel and distinctive characteristic of the Ameri-

[1] The "Camp Fire" department of *Adventure*.

can Legion, however, seems to be the mobilization of brains and skilled workmen, ranging from wizards of electricity and finance to cowboys.

Closely allied in spirit with the formation of the "scientific branch" of the American Legion is the action taken by various associations of civil, mechanical, electrical, mining and consulting engineers, bridge-builders, electricians, telegraphers and other trained experts in civil life, who have offered to coöperate with the Army War College in Washington by forming reserve corps to be available in case of war. Plans are now being worked out by means of which the Government may be able to avail itself of this offer.

The National Security League

The Navy League and American Legion, prominent though they have suddenly become, have temporarily been eclipsed by a third society, the National Security League by name, which has attained such prominence and engaged in such feverish activities as to earn the sobriquet of the National *Hysteria* League.

This organization makes its appeal especially to business men and men of wealth, with a predilection, like that of the Navy League, to secure the support of the "exclusive social set." It presses upon these classes such questions as: "Will you consider for a moment the effect upon your business of the sudden appearance of a large hostile force off our coast or on our border? Do you know that in the present condition of our defenses we would, in such an event, be practically helpless?" Interpreting our "unpreparedness" as evidence of a lack of patriotism and a subsidence of nationalism, the League has taken these two praiseworthy sentiments under its special guardianship.

Organized in December, 1914, the League recruited within six months more than three thousand, and within eight months more than twelve thousand, members,

comprising "the influential citizens, the best men," in the cities of New York, Philadelphia, Boston, Pittsburgh and Chicago. Each new member promises to recruit at least five others, and thus an "endless chain," or a "five times one" device, has been started for it. National and State field agents are working for members among such fields as the delegates to the National Manufacturers' Association's annual meeting, held during the summer in Atlantic City. Two hundred cities are being organized into branches of the League, and it is planned to have a separate headquarters or clubhouse in each city. College graduates are especially welcome; and the promising field of college undergraduates has been entered upon by the establishment of a branch of the League at Harvard. It has held "unpreparedness exhibits" on the leading thoroughfares of the large cities, during *two months before the meeting of Congress.*

The League held a national conference and "monster mass meeting" in New York City, in June, 1915, and one feature of the occasion was an elaborate "exhibit" of the machinery of war, from small arms to a Whitehead torpedo, twenty feet in length. Its "publicity campaign" has been truly remarkable. The "front pages" of the metropolitan dailies, the Sunday Pictorial Supplements and editorial columns, have been most generous in their attention to the League's activities, and especially to its coöperation with the Summer Training Camps inaugurated by the United States Army.

Summer Training Camps

Four of these camps have been held this Summer, at San Francisco, Chickamauga, Ludington, Michigan, and Plattsburg, New York. It is with the last of these that the League has been especially identified. General Leonard Wood, the head of the camp movement, was especially helpful to the League in its work of inception and organization. He made speeches at luncheons and else-

where, under its auspices; and the League has reciprocated valiantly in aiding his camp movement. It was chiefly instrumental in recruiting and sending to Plattsburg fourteen hundred business and professional men from New York City, Philadelphia and elsewhere. These included the mayor of the metropolis, an ex-Secretary of State and ambassador, prominent newspaper correspondents, college athletes, the most gilded of society's *jeunesse dorée,* etc. It is small wonder, then, that the newspapers should have found in such incipient warriors, especially in these warlike days, fair game with which to supply the jaded appetites of their readers. Hence, the papers have been filled during the month of the camp's duration with an exhaustive account of the camp's daily activities from taps to reveille, copiously illustrated by pictures of the eating, bathing, fighting, etc., of the future heroes and present celebrities. As indicative of the type of soldiers illustrated by the Plattsburg campers and of the kind of interest excited by and in them, the following excerpt from a newspaper account is a fair sample of countless others. "The regiment was followed throughout the day," says this account of the sham battle in which the march occurred, "by a long line of automobiles, and to-night in the bitter cold [on the 27th of *August*] the citizen-soldiers are gathered about huge camp-fires with many of their women friends." They have been associated, also, with six hundred regulars of the United States Army, and General Wood has been the presiding genius of the camp. In addition to the instruction given to this novel kind of "rookies" by regular instructors connected with the camp, they have listened to fervent exhortations from orators prominent elsewhere. One of these orators, doubtless "intoxicated by the exuberance of his own verbosity," went so far as to denounce before the camp and in General Wood's presence the national administration for its neglect to provide the country with ade-

quate armaments, and for its supine policy in dealing with Germany. This insubordination bordering closely on treason, at the critical time at which it occurred, called forth a rebuke to the head of the camp from the Secretary of War, and for a time word went forth that it would be well for the newspapers and all others concerned to moderate their transports, lest the camp should be in need of rescue from its friends.

But in the main, the experiment was pronounced so brilliant a success, that a second camp at Plattsburg was held in September. The National Security League recruited for this camp "almost as many prominent men as it had sent to the first"; and, to prevent hard feeling between the country and the town, or to spread the gospel of preparedness as widely as possible, many of these prominent men were recruited from the rural districts.

One month's training, of course, is scarcely sufficient to develop an efficient officer for a real army; and, although General Wood plans to institute a "correspondence course" for the graduates of the Plattsburg Camp to take during the winter, the prime object and the ultimate result of the camp is to be, not so much instruction, as inspiration. The graduates of the camp are expected to become eager and effective supporters of the National Security League and its work. They are to talk and write about the camps which, it is hoped, will be opened throughout the United States next summer; and, in particular, they are to mould public sentiment and bring pressure to bear upon congressmen to provide for "adequate preparedness." They are to support the definition of "adequate preparedness" which is provided by the General Staff of the Army and the General Board of the Navy, and are to frown upon any mere civilian endeavor to decide upon so "technical" a question. As business men, they are to insist upon business methods in making and using congressional appropriations for

military purposes. And as men endowed with the wisdom of this world, they are to deprecate the membership, or at least the prominence, in the National Security League of men who are actively or obviously engaged in the manufacture of military supplies.

The Governors' Conference

Since the right and duty of determining the size and character of the armed forces of the country are possessed, in our democratic Republic, by the people and their representatives in Congress, the ultimate aim of the campaign of preparedness in all its phases is to organize and concentrate "political pressure." Hence, the gubernatorial, congressional and presidential political cauldrons are already seething and bubbling from the fuel of preparedness.

At the eighth annual conference of the Governors of the States, held in Boston, in August, 1915, the question of preparedness was kept well to the fore. On the arrival of the governors in the city, each was met by an officer of the Massachusetts militia, who acted as his aide throughout the conference. This was done avowedly to "give the clue to the arriving guests that the paramount issue for them to develop in conference is that of preparedness." The entire Massachusetts militia, 6,000 strong, encamped during the conference on Boston Common, in front of the State House, in which the conference was held. The Secretaries of War and the Navy were invited to address the conference, and the Secretary of the Navy, requested to send a battleship to the harbor, responded by sending all the available ships of the Atlantic fleet. On the first day of the conference, the fleet manœuvred in battle drill; on the second day, a parade of the militia, including machine-gun companies, field artillery, naval brigade, signal and hospital corps, and "a *long* baggage train," was reviewed by all the celebrities of the State and city, and automo-

biles were supplied to the governors for their participation in it. After such skilful "whooping it up" for preparedness, the stage was set for the discussion of the question on the third day of the conference. The public came in such numbers that the discussion was adjourned from the Senate Chamber to the Hall of the House of Representatives, and here the governors of sundry States made a successful appeal "to the galleries." For example, the Governor of Illinois declared that every college and university receiving State or Federal funds should give four years of military training to all their students. The Governor of Massachusetts went on record in support of the appropriation of State or Federal funds for military training in all the public schools. The Governor of New Jersey, as coming from the State of the President and the Secretary of War, and as their personal and political friend, was expected to "put the administration on record." His speech was a distinct disappointment, however, to the enthusiasts for preparedness. He contented himself, for example, with advocating the addition of *only* 25,000 troops to the regular army, "whereas," writes a well-informed newspaper correspondent, "the New England public, regardless of party affiliations, has begun to think in terms of a regular establishment of at least 200,000 men, and of a system of military training the country over which, with an increased State and newly created militia, will give the nation a body of citizen soldiery 1,000,000 strong, upon which the country can rely at all times."

The discussion was followed by the adoption of no resolutions in favor of preparedness, and the conference turned quickly away from a subject which evidently contained political elements of dangerous possibilities, and took up that of "the conservation of mankind and natural resources." The New England disappointment in this lame and impotent conclusion, was expressed in a leading newspaper's comment that "war is hell, but more

than hell is necessary to convince [peace] fools of their folly."

The advocates of preparedness are hopeful, nevertheless, that the governors were sufficiently impressed to lead their people, on returning to their homes, in a demand that their congressmen shall support a programme of preparedness. Nor were the New Englanders' efforts to impress the governors wasted within their own horizon. Under the stimulus of these efforts, and of Colonel Roosevelt's Plattsburg speech, which occurred at the same time, some Harvard graduates set on foot a movement to have their alma mater add to her curriculum "a course in the principles of military command," which shall be made as attractive to as many students as possible by counting towards the bachelor's degree. It appears to be confidently expected that this movement will succeed, and that Yale and the other New England colleges will follow the example.

Massachusetts in the Lead

The State of Massachusetts, too, under the double stimulus of the Governors' Conference and the return of the New England contingent of "rookies" from the Plattsburg Camp, is vastly enthusiastic over plans and hopes of "preparedness." A well-informed journalist of the Old Bay State writes of these as follows: "The Old Bay State is about to set an example to the nation that, it is expected, will be imitated, first, by the sister States of the New England group, and later by the other States of the Union. Massachusetts, without waiting for the Federal Government to act, is tackling the problem of national defense on its own account. The last Legislature authorized the creation of a "commission on military education and reserve," the first of the kind ever established in the United States. That commission has been organized with an aggressive Boston lawyer, former militiaman and Plattsburg "rookie," as chair-

man, and a distinguished membership that includes the names of two college presidents, a prominent labor leader, two major generals and one brigadier general, and a widely known editor. It has decided to hold a series of weekly hearings, at which opportunity will be afforded for a period of six weeks for every person or organization in New England that is interested in the subject of preparedness to be heard. It is expected that this question, that has become acute since the *Lusitania* incident, will be given an airing that will attract the attention of the country. It will come at an opportune time, on the eve of the assembling of Congress, so that it is probable that the discussion here will prove of influence later on in Washington. The appearance here at the first hearing of Major-General Leonard Wood and President Lowell, of Harvard, will give the hearings a good start. Both have been invited to attend. Nobody in Massachusetts doubts that the commission will be able to submit to the next Legislature a comprehensive plan for strengthening the defense of the State. The sentiment here is strong and it is believed that a reasonable program will be indorsed by the legislative branch of the Government. Like the East in general, New England is enthusiastic for legislation providing for a greater degree of preparedness. None of the apathy on the subject that prevails in the West and Middle West is to be found here. Still, there are peace propagandists and professional pacificists, who undoubtedly will be bitterly opposed to the State "going in" for military preparations on a larger scale than now exists in the militia. There will be no attempt to stifle their voices, but there probably will be efforts to effect with this element a reasonable compromise. The report to be compiled by the commission will embrace some eight subdivisions of inquiry, but they fall generally under two heads: one relating to the armed military forces of the State, and the other to military training in the public schools. Except

in Boston and a few other cities there are no high school cadets in Massachusetts, and inquiry leads to the conclusion that the extension of this system likely will meet with opposition. A compromise may be reached on a basis of involuntary physical training of all male students, but without military drills with guns. Great emphasis will be laid upon the physical benefits to be derived from such courses of exercises. This is one of the lessons that New England's volunteers have brought back from the Plattsburg camp. While no definite program has been adopted by the commission, its report probably will represent public opinion, which is slowly crystallizing in favor of Federal rather than State military forces. There will be no opposition to this from the States' rights philosophers, but it seems to those who have gone thoroughly into the subject that the obvious scheme would be the adoption by the Federal Government of a general plan of national defense which the States as individual units could adopt, thus producing uniformity and cohesion. Very likely Massachusetts will lead the way toward this end. Another question that the commission will study will be that of the adaptation of the Swiss system to Massachusetts. There also probably will be a recommendation for the establishment by the State of a permanent camp of instruction similar to that at Plattsburg for the military training of the young men of the Commonwealth.

The Congressional Campaign

The congressional campaign for preparedness, apart from its gubernatorial phase, is well under way. When the crisis in the diplomatic relations between the United States and Germany was acute because of the sinking of the *Lusitania* and *Arabic,* it was confidently hoped by the prepareders that Congress would be called in extra session, at least for increasing the army and navy. Under the shadow of an impending war, the policy of

preparedness would doubtless have received an enormous stimulus in such a session of Congress; but, fortunately, for many reasons, the President has not considered it necessary or desirable to summon an extra session. The regular session of Congress, however, is rapidly approaching, and the preparedness campaign has fully prepared for it. Among many features of its activity may be mentioned, by way of illustration, the questionnaire sent out by the National Security League to each congressman, demanding to know his attitude towards "the prime issue of the day, preparedness." The replies have come in so promisefully that the League has expressed itself as very well satisfied with the congressmen in most sections of the country, especially in New England and on the Pacific Coast; but it sounds the warning that there are still "backward parts" of the country, and promises to devote to them its very particular attention.

It has organized State Delegations for National Defense, which have showered the President and Cabinet with demands for preparedness; it is holding mass meetings throughout the country to procure signatures to preparedness petitions, which it hopes to have signed by 15,000,000 voters; it has named December 6 as "National Defense Day"; and it has sent its officials to Washington to be ready to "receive" the returning congressmen, and to secure material for starting "back fires" in the home districts of Senators and Representatives who venture to oppose the programme.

Meanwhile, political pulse-feelers and aspirants to the leadership of congressional majorities and minorities, like the senior Senator from Pennsylvania, are giving out frequent interviews and addresses, solicited or otherwise, in which the people are informed that their international affairs have been and will continue to be in a very grave and dangerous crisis, and that their country is "potentially the strongest and practically the weakest

of nations." Therefore, they wail, *Prepare, prepare,* and let us prepare for you.

The Presidential Contest

In the presidential contest of 1916, also, which is already well under way, the Outs are preparing to smoke out the Ins by the smoke of the campaign of preparedness. At the Governors' Conference in Boston, a representative of the Outs from the Middle West declared that while the Democrats will wage the fight on a candidate, their present leader, the Republicans will go before the country on a creed, and that the prime article in this creed will be: "Protection everywhere honestly applied, which will restore our prestige abroad, revive our prosperity at home, and put the nation in a position to defend its honor and its rights on land and sea against all comers."

The ex-presidential advocate of "the third-cup-of-coffee" policy has lost no opportunity to convince the voters that the country should rid itself of "milk-and-water statesmen," and should place itself under the protection of "statesmen of blood and iron." On the other hand, the possibility that the political enemy might reap all the advantage that may accrue to the advocacy of preparedness has led sundry lesser leaders of the Democrats to engage in verbal fireworks with the redoubtable Colonel, in order to assure the country that their party also is eager to prepare. The non-partisan observer of the wave of military "tommy-rot" which is sweeping over the country, listening to the noise of this quarrel between the politicians, has been hopeful that it betokened a rift in the lute of preparedness, and that its discord would soon fade into the realm of oblivion where such wailing discords properly belong. But it is only too probable that the rival parties will continue to emulate each other in the howl for preparedness, until the country is hounded into a panic and flees to preparedness in earnest.

II

PAST ATTEMPTS AT PREPAREDNESS

SUCH are some of the phases of the campaign for preparedness which has our country in its throes at present. In view of the alarm which is being sounded everywhere and incessantly, it may be sensible to pause for a moment to inquire whether we have ever prepared before this year of grace and enlightened patriotism, 1916, or whether we are only just now, under an unprecedented prodding, beginning to get ready to commence to prepare? Many millions of words were talked into the *Congressional Record* last winter by members who insisted that we are absolutely unprepared, and that it is the prime duty of the present to prepare.

Glancing back casually over a few years of recent history, we may be surprised to learn that we have been at least going through some of the motions of promoting preparedness.

THE PRESENT GENERATION'S PREPAREDNESS

Taking the work of the present generation,—the past thirty-four years,—for example, we find that we have increased our regular army from 25,000 to 90,000 men, or by 350 per cent. Even during the Civil War of 1861-1865, our regular army was increased to only 50,000 men.

One generation ago, in 1880, our expenditure for the army (exclusive of pensions) was $38,000,000; to-day, the same expenditure is $106,000,000. In 1880 our expenditure for the navy was $13,500,000; to-day, it is $145,000,000.

Thus, the increase on the army during the generation has been nearly 300 per cent., and on the navy 1,100 per cent. At the same time, the expense for the army and navy, per capita of population, has increased from $1.00 to $2.50, and from one-fifth of the total expenditures to more than one-half.

Most of this extraordinary increase in military and naval expenditures has occurred during the latter half of the generation. In the seventeen years from 1882 to 1898, our expenditures on the army amounted to $818,000,000, or less than one-sixth of the total; during the seventeen years since the Spanish War, from 1899 to 1915, they have amounted to $2,340,000,000, or more than one-fourth of the total. In the first seventeen years, from 1882 to 1898, our expenditures on the navy amounted to $419,000,000, or one-thirteenth of the total expenditures; in the second seventeen years, from 1899 to 1915, they amounted to $1,800,000,000, or one-fifth of the total.

If we had spent upon the army and navy during the seventeen years from 1899 to 1915 the same sum that we spent upon them during the seventeen years from 1882 to 1898, we would have saved the tidy sum of *three billions* of dollars. That is to say, we could have built the Panama Canal eight times over with the mere *increase* in our army and navy appropriations during the past seventeen years!

Our work for "preparedness," then, during the past generation and especially during the latter half of it, has increased enormously, whether it be viewed from absolute increase in size and expenditure, or from the increase relative to population, total expenditures, or great national tasks.

AMERICAN, GERMAN AND BRITISH PREPAREDNESS

Again, if we compare our recent work for "preparedness" with that of the so-called "militaristic" nations

of Europe, we cannot be said by any means to have done nothing, or even to have fallen behind them as far as expenditure of the people's money is concerned. Consider, for example, the following brief comparison of our military and naval expenses with those of "militaristic" Germany and "navalistic" Great Britain.

Between our war with Spain in 1898 and the beginning of the present war in 1914, we expended for military and naval purposes (exclusive of pensions) the sum of *four billions* of dollars. During the same period, Germany expended for the same purposes a sum not quite so large. And yet we have complained bitterly of Germany's "militarism" and "preparedness," while our experts tell us that we are "absolutely unprepared." In 1881, we spent $38,000,000 on our army, and Germany spent $91,000,000 on its army; thirty years later, we spent $122,000,000 on our army and Germany spent $204,000,000 on its army.

During the same thirty years, while Germany increased its annual expenditures on the navy from $11,000,000 to $114,000,000, we increased ours from $13,000,000 to $120,000,000. A former Secretary of the Navy has declared that our navy has cost $500,000,000 *more* than Germany's navy has cost, but that ours is a poor second to it! There is evidently something *rotten* in another State than Denmark.

Even Great Britain, "the mistress of the seas," increased her annual naval expenditures between 1881 and 1911 from $51,000,000 to $203,000,000, or by *only* 400 per cent., while we increased ours within the same period by more than 900 per cent.

Evidently, if militarism and navalism are to be measured by expenditures for military and naval purposes, the United States may well be accused of illustrating the familiar phenomenon of the pot calling the kettle black. At all events, the facts stated above are proof positive and superabundant that we are *not* now just beginning

to "prepare," but that we have led the world, during recent years, by our colossal efforts in that direction.

AMERICA AND THE SWISS SYSTEM

It is the fashion in our great Republic for the prepareders to demand "at least as much preparedness as the little Republic of Switzerland provides." But it is quite possible that our people are ignorant of the fact that while Switzerland has expended for military purposes during the past ten years the sum of $65,000,000, we have expended for military purposes (exclusive of the navy) during the same time, the sum of $1,300,000,000, or just about *twenty times as much!*

It is true that our army numbers less than one-fifth as many men as are trained for war in Switzerland,—the latter possessing an army of "citizen soldiers" numbering a half-million. To balance this disadvantage, however, we have, instead of the Alps, the Atlantic and Pacific Oceans, and a navy upon which we have expended during the past ten years the sum of $1,200,000,000.

Our preparedness upon the land, however, must be made equal to Switzerland's, even though it cost us one hundred times as much as Switzerland expends; and our rank as a "world power" demands a military preparedness able to cope with that of a victorious Germany, and a naval preparedness second to none,—not even to that of an undefeated Great Britain! So say our valiant prepareders, and they are moving heaven and earth to accomplish their object of "preparing" our reluctant Republic by means of a campaign unprecedented for energy, ability and enthusiasm even in the Continent of War Lords and Political Despots.

III

PREPAREDNESS FOR WHAT?

THE energy, ability and patriotic sentiment back of the campaign for "preparedness" would certainly be most praiseworthy, were they exerted for a truly praiseworthy purpose. It is an excellent thing to *prepare,* with energy, ability and love of country, provided that we prepare for the right thing and by the right means. The plausible term "preparedness" is usually explained or defined by the further plausible terms "adequate armaments" and an "efficient army and navy." Now, there is something peculiarly attractive to the man of the Twentieth Century, and particularly to the American, perhaps, in the term "adequate" or "efficient." *Whatever* we have, we desire to be "adequate" or "efficient."

It is impossible, however, for anything to be *merely* adequate or efficient; it must be adequate for *something,* it must be efficient for *something.* What is it, then, for which the armaments that are being so vociferously demanded in the United States at the present time are to be adequate or efficient?

In our Southland, the Captain Hobsons predict every little while an inevitable war with Japan; let us, then, they insist, make **our** armaments adequate to prevent Japan from causing the sun of our national greatness to set in the Pacific.

In New England, the Captain Gardners dream of the Yellow Peril and its menace to the white man's civilization; of perfidious Albion striking at our hearts through Canada, or sweeping our commerce from the seas and bombarding Boston and New York; of a vic-

torious Germany invading our own coasts or South America with submarines, superdreadnoughts and an army of several million veteran soldiers. Therefore, they wail, Let us arm! Let us prepare to defend our firesides and our Monroe Doctrine!

In our Middle States and throughout the West, the Colonel Roosevelts iterate and reiterate the warning that the United States must guard against the imminent danger of being Belgiumized or Chinafied, and like the agitators of old they clamor: To your tents, to your tents, O Israel! "The most important lesson for the United States to learn from the present war," they declare, "is the vital need that it shall at once take steps to prepare."

The tumult of the European War has mingled with these voices of fear and warning, and many of our fellow-countrymen have caught the contagion. From the builders of superdreadnoughts down to the "social leaders" who are shouldering muskets or making lint and bandages, Americans are busily, even hysterically, engaged in "preparing." Now, in spite of the fact that our country has not been attacked by a foreign foe throughout a century of "unpreparedness," and in spite of the further fact that our potential enemies are busily engaged in destroying each other's armaments, it is nevertheless entirely possible that these prophecies of evil may be realized some time in the future. All things are *possible*,—even that Mars may make an attack upon the Earth by way of the Moon!

IV

MOTIVES OF PREPAREDNESS

IT is true that to the unimpassioned observer of the prevalent passion for "preparedness," there appear other reasons for the advocacy of "adequate armaments" than a genuine fear of foreign invasion and a determination to get ready to repel it. Before discussing this last reason, then, let us briefly consider three of the others. These are not so popular, and not so generally accepted,—at least in public; but they undoubtedly exist, and they add considerable weight to the momentum of "the campaign."

POLITICS

In the first place, there is *politics*. Such adroit politicians as the Roosevelts and the Hobsons leave us to conjecture, rather than supply us with admissions, as to the close connection between politics and the preaching of "preparedness." The Gardners, however, have supplied us with publicly acknowledged,—or boasted,—and most convincing, testimony as to the value of the armaments plank in the platform of the politician ambitious to secure the suffrages of his fellow-citizens. For example, after Representative Gardner, of Massachusetts, had made some speeches in Congress on "Preparedness," had offered a resolution for the appointment of a commission of inquiry into our "unpreparedness," and had given out newspaper interviews and a carefully prepared statement to thirty-two selected newspapers, his "next step," he naïvely admits, "was to go home to be re-elected." "I spoke continuously upon this topic,"—dur-

ing his campaign for reëlection,—he testifies, "and upon very little else in my district. The people were so disgusted with my views of the question that they elected me by over 12,000 plurality,—somewhat in contrast to what happened last year. I have the honor to be the worst defeated man who ever ran for governor in Massachusetts on the Republican ticket. But this year, after preaching this doctrine, I had 12,000 plurality." [1]

This emphatic testimony as to gubernatorial aspirations and success has not fallen by the wayside, but has been taken to heart by the candidates for the governorship of Massachusetts in 1915. One of these candidates has taken it so much to heart that he has made his campaign in an *armored automobile* that is later to perform another kind of campaign service on the battle-line in France. His automobile is built like a torpedo, painted battleship gray, and provided with peep-holes or port-holes, through which machine guns are to pour their missiles upon the Germans, and through which the belligerent candidate pours the hot shot of his oratory.

In a speech before the House of Representatives, January 21, 1915, Mr. Gardner repeated and emphasized his testimony as to the political value of advocating "preparedness," as follows: "I know what I am talking about, for I have already tried several experiments in that line. I am not eloquent. I have not even the sublime gift of the gab. Hitherto I have never been able to make an audience applaud me more than a small fraction of a small second. Hitherto I never in my life felt the glowing consciousness that an audience wanted me to continue. But on this question of the national defense I have got my audience going as if I were William Jennings Bryan talking prohibition to a convention of patent medicine dealers. Never before in my life have I had applause as if my audience were paid a dollar a clap,

[1] Mr. Gardner's testimony before the House of Representatives' Committee on Naval Affairs, December 18, 1914.

and I confess I like the new sensation. So I just give fair warning that if any one of you pacifico Members of Congress wants to challenge me to a joint debate in the month of March before any audience,—black, white, yellow or pink,—I am at your service, and you will not have to give me any gate receipts or honorarium or any other of the fifty-seven different varieties of high-brow pickings either."

We must acknowledge that Mr. Gardner's contentment with *votes* alone as compensation for his elocutionary efforts is entirely explicable; and we must accept his convincing testimony as to the value of "preparedness" as a vote-getter. His listening colleagues in Congress were duly impressed, doubtless, by this testimony; for we are already launched in the mid-stream of a congressional campaign, the chief slogan of which is "preparedness." The protagonists of the respective parties are already contending for the credit of having brought this issue before the public; and Republican leaders are copiously lamenting the advantage that the Democratic congress and administration have in being able to carry through a programme for preparedness during the coming winter, and before the election of 1916. From ex-presidential aspirants for "third cups of coffee," down to candidates for the office of borough alderman, politicians anxious to serve their country are filling the air with vociferous demands for "adequate armaments" or "preparedness."

All this has its amusing side, characteristic of American political life; but, fundamentally, it is playing with fire. The man who dares to appeal to the fighting instincts of the American people,—and we *are* a fighting people; who inflames our national passions,—and we have them; who evokes our international and racial prejudices,—and these too are not unknown among us; such a man, be he desirous of the highest or of the lowest office within the gift of the people, richly deserves to be

overwhelmed by an avalanche of votes at the polls and retired to, or kept in, the innocuous desuetude of private life!

The influence of "politics" on the programme of preparedness,—after the political aspirant has ridden into office on the wave of preparedness agitation,—may be judged by the following facts relating to coaling and naval stations which a former Secretary of the Navy, Mr. Meyer, recalled in a recent magazine article. "Until within a few years," writes Mr. Meyer, "no naval appropriation could pass the Senate which did not meet the sanction of both a Northern and Southern Senator, each of whom was a member of the Committee on Naval Affairs. It is interesting, in consequence, to analyze some of the appropriations between 1895 and 1910. In 1899 a site was purchased in Frenchman's Bay, Maine, at a cost of $24,650,—far above the assessed valuation,—and later an additional amount of $600,000 was expended to obtain there an absolutely unnecessary coaling-station, which has since been dismantled, as it was practically unused. At the Portsmouth Navy-Yard, so called, in Kittery, Maine, a dock was built at an expense of $1,122,800, and later it was found necessary to blast away rock in the channel in order to reach the dock, at an additional expense of $745,300. Between 1895 and 1910 improvements, machinery, repairs and maintenance in the yard amounted to $10,857,693, although there was a large navy-yard within seventy miles.

"On the other hand, at Port Royal, South Carolina, a dock was built at the insistence of the Southern Senator, at a cost of $450,000, which proved useless, and, although the original cost of the site was but $5,000, it was not abandoned as a naval base until $2,275,000 had been expended. Not the least daunted by this extravagant waste, the same Senator determined to have a share of the naval melon for his State, so, with the assistance of the Northern Senator, he obtained the establishment of

another naval station at Charleston, South Carolina, in 1901. There was no strategic value thus accomplished, nor was it necessary, with the Norfolk Navy-Yard located at Hampton Roads. The $5,000,000 which has been squandered at Charleston includes a dry-dock built for battleships, costing $1,250,000, but which experience shows can only be used by torpedo-destroyers and gunboats.

"The United States has over twice as many first-class navy-yards as Great Britain, with a navy more than double the size of ours, and more than three times as many as Germany, whose navy is larger than that of the United States. The total cost of navy-yards up to June 30, 1910, with land, public works, improvements, machinery and maintenance, including repairs, amounts to $320,600,000. Overburdened with a superfluous number of navy-yards distributed along the Atlantic Coast from Maine to Louisiana, in 1910 I recommended that Congress give up and dispose of [eight] naval stations, . . . none of which was a first-class station. The average yearly cost of maintaining these stations between 1905 and 1910 was $1,672,675, and very little useful work had been performed at any of them. Later, I practically closed them, but could not abolish or dispose of them, no action having been taken by Congress. Pensacola and New Orleans have since been reopened by my successor. The Pensacola Navy-Yard, originally a military reservation, had cost the United States Government, up to 1910, $12,200,000, with little return in the way of output.

"The fundamental cause of excessive expenditures is due to the fact that appropriations are not made with the sole view of the battle efficiency of the fleet (which is the navy) and its military requirements. Politics and log-rolling, as I have shown, have entered into the making of appropriations by Congress. A more recent case is the training-station outside of Chicago, established in

1905. The original site was a gift, but $3,646,000 has been expended, buildings erected on a lavish scale, quite unnecessary and not suitable, due to the zeal of a congressman of the district, a member of the Naval Committee. One-half the amount would have more than met the requirements and have been better adapted to what a training-station should be."

PROFITS

Next to the alliance between preparedness and politics, there has been discovered a close connection between preparedness and *profits,* between *dividends* and dreadnoughts. Certain manufacturers of war supplies have engaged actively in the manufacture of war scares. Regularly, for years, when Congress has had before it appropriation bills for the army and navy, a war scare has swept over the country, or at least over the capitol, and the "imminent" danger of war with Japan or with Germany has been used to dragoon the congressmen into voting as large appropriations for preparedness as possible. In Germany, Great Britain and Japan, investigation has revealed the fact that similar war scares have been stimulated by the manufacturers of armaments with the object of increasing a demand for their products. In our country, such men as Mr. Orville Wright are moderate and modest enough to say: "I do not advocate the acquisition (by the Government) of too many machines because I happen to be in the aëroplane business"; but, he naïvely adds: "What would stimulate most the manufacture of aëroplanes here [in the United States] would be some real business from the Government. If a builder knew that he had a market for, say, 100 machines, provided they came up to the requirements laid down by the authorities, it would prove the most powerful incentive possible." It has since been reported that the syndicate which recently bought the aëroplane patents, factories, training-school and equipment of Mr.

Wright's company at Dayton, Ohio, has promised "to coöperate in every way possible to make the preparedness movement a success."

Not all the inventors and manufacturers of military equipment are so moderate and frank as Mr. Wright. For example, the head of the Bethlehem Steel Company, —whose "war orders" in four months made 1914 the banner year in the company's history,—gave out an interview to the newspapers as follows:

"A strong navy is a nation's chief asset. Germany is now splendidly equipped upon land, but as control of the seven seas has always been Great Britain's policy, Germany must equal the latter's fleet to win. Nations controlling the seas have ruled the world in the past, and it will always be so. Let America take warning."

These fervent adjurations to the public to prepare are usually salted with "patriotism," the injunction to purchase large quantities of their own products being coupled with expressions of undying affection for the land of their nativity,—or adoption,—and a hyphenated citizenship and the last drop of blood being freely promised to the altar of the country's defense.

But this "patriotism" would be more impressive if the American public knew that American-made arms and ammunition, battleships and airships, would be sold only to the American government. The lamentable fact, however, is that patriotism is not permitted to interfere with profits, and American manufacturers have engaged with desperate energy in enabling America's possible enemies to "prepare." For example, before the President placed an embargo on the shipment of arms and ammunition into Mexico, American manufacturers poured an avalanche of such material across the border into the hands of the government and the rebel troops alike. During the continuance of the embargo, the manufacturers piled up their products in Mobile, New Orleans and other Southern ports, and as soon as the em-

bargo was lifted, the avalanche began again. Throughout all this period, it appeared but too probable that the United States government would be called upon to intervene in Mexico itself; and American manufacturers who were loudly demanding this intervention were supplying the Mexicans with guns and bullets which were enabling the Mexican anarchy to continue and which would be used, in case of intervention, against American soldiers.

Again, both before and during the present war in Europe, these same manufacturers have joined lustily in the demand that the United States shall "prepare," and yet they have made and shipped hundreds of millions of dollars worth of military equipment to the very nations against whom we are called upon to prepare. And they have actually reversed the maxim that "charity begins at home," by selling this equipment to foreign governments at lower prices than they exact from our own government. For example, as is shown in the report of the Secretary of the Navy for 1913: in 1894 one of our producers furnished armor plate to Russia at $249 a ton, while charging our own government $616.14 a ton. In 1911, the same company furnished armor plate to Italy at $395.03, while charging the United States $420; and in 1913, they furnished armor for the Japanese ship, *Haruna,* building at Kobe, at $406.35 a ton, while exacting prices ranging from $440 to $504 for the American battleship No. 39.

Another significant fact is revealed in the report of the Secretary of the Navy for 1914, which says: "Twice were the armor-plate factories saved a monopoly of this business through a 'mysterious providence.' There are only three concerns in the country which make armor plate, and last year when bids were invited, all three made identically the same bids to a cent. They justified this sham of bidding by saying that the department had fixed the price and divided the business between the three

concerns regardless of the bidding, making the award on one-third the quantity desired to each firm at the lowest figures quoted, which was always, as may be supposed, a figure which gave inordinate profits."

In the light of such facts, there is small wonder that the question has been raised, Is the lack of battle cruisers in our navy, and the incessant demand for more dreadnoughts, due, partly at least, to the fact that the battle cruiser,—which is of very great effectiveness,—requires far less armor plate than does the dreadnought? There is small wonder, also, that the larger question has been raised, Would it not be advisable for the government to manufacture its own military and naval supplies?

The shipment of military supplies of all kinds to as many of the belligerent nations of Europe and Asia as can procure and pay for them has been enormously stimulated by the present war. Naturally laws forbid the direct shipment of warships; but parts of ten or more submarines have been manufactured in Pennsylvania, assembled in Canada, and shipped to Great Britain, by a single American company. This company has also built eight or more submarines in Massachusetts for the British government, and these are being guarded by United States naval officials "until such time as a disposition satisfactory to all parties can be arranged."

But, although debarred for the present by neutrality laws from shipping warships and armies complete, to our "possible enemies," our American manufacturers have found a bonanza in the shipment of everything needful for them. In fact, certain large fields of American industry have been revolutionized by the attempt to supply the great powers of Europe and Asia with military equipment. By June of 1915, the war orders placed in the United States totalled more than one billion dollars, and the country was informed that this was a mere beginning. Fifteen firms in Detroit received a $31,-

000,000 order in one day from Russia. New England is declared to be more prosperous than at any other time in its history, its exports from its own ports having trebled and quadrupled within six months after the war began, besides other uncounted millions shipped by New England manufacturers through New York. The exports from New York in the single month of July, 1915, increased nearly $100,000,000 over those of July, 1914,—the month before the war began. Every railroad and every coastwise steamship line running into the city have been congested for weeks by exports for the war. In one day, there cleared from New York seven steamships loaded with 100,000 tons of military supplies, including ammunition, armored automobiles, guns,—two of these 14-inch guns, 53 feet long and 60 inches wide at the breach. Part of the cargo of these steamers was made up of hospital supplies and coffins; thus, the old-time policy of shipping rum and copies of the Bible on the same ship to "the heathen" is paralleled by the present-day shipments of death-dealing and body-healing equipment on the same steamer. The exports of surgical goods have doubled during the year, and American undertakers have felt the stimulus in trade. Another day's consignment was that of 100,000 shells on Norse and Danish steamers for use in the German army. Orders for 25,000,000 shrapnel shells costing $400,000,000, were placed in the United States before the end of the first year of the war. The pressure on the New England railroads, which traverse "the ammunition belt," has been enormous. The piers of the N. Y., N. H. & H. R. R. are surrounded by lighters, on which men are working night and day to keep pace with the accumulating freight. Various ports on the Pacific coast have been nearly overwhelmed by the war exports to Vladivostok and Japan. To move these exports on the other side, 20,000 freight cars and 400 locomotives had to be shipped from America to transport into Russia such commodities as armored

cars, dynamite, pig-lead and copper, guns, rifles, barbed wire for the trenches, etc.

The needs of the cavalrymen of the Old World have not been neglected by American shippers. A Western firm has a contract to supply 500 horses per week to Great Britain; South Omaha sold $4,000,000 worth of horses to the allies in the first year of the war, and expects to double this in the second year. These are examples of the export trade in horses, which increased during one month (February, 1915) from $200,000 to $9,300,000, while the export of saddles and harness increased eleven fold.

Nor have the needs of foreign aviators been neglected by the American manufacturers of aëroplanes and their accessories. Scores of plants in various parts of the United States are rushing their products to "the possible enemies" of their country. For example, one establishment in Buffalo, with a capacity of twelve aëroplanes a day, has shipped abroad 400 aëroplanes and 1,000 aëroplane motors, and is now working on orders for 600 more planes and 1,000 motors. The same firm has shipped twenty huge flying-boats of the "America" type, equipped with two 90 horse-power motors, and is working on another biplane of 180 horse-power, with a speed of 90 miles per hour, which is to go to Great Britain. Another firm in Ithaca has been filling large orders for biplanes of 90 horse-power, and is now turning them out for export, with 160 horse-power. In Marblehead, Los Angeles, Dayton, New York, Norwich, Grinnell, Paterson, Bridgeport, and many other places, European orders for war-planes and motors have been placed in enormous quantities.

Numerous and varied industries have been transformed from subserving the interests of peace to supplying the sinews of war. As a few examples of these, there may be mentioned the New York Air Brake Co. and the Westinghouse Air Brake Co., which received an

order from Russia for $30,000,000 and $35,000,000 worth of shells, respectively, each shell to be provided with 260 bullets; the Des Moines Monarch Machine and Stamping Co., which has a $6,000,000 contract for 1,000 shrapnel shells per diem; automobile companies exported $47,000,000 worth of armored automobiles in the first year of the war; a brewery plant in West Virginia has been leased by the National Salt and Chemical Co. and devoted to the manufacture of explosive chemicals; sundry typewriting and adding machine companies in the Middle West have formed the "American Ammunition Co.," for securing contracts for high explosives and shrapnel shells, and received a contract during the first week after organization for $10,000,000 worth of ammunition; the manufacturers of locomotives, electric boats, cars, car and foundry supplies, ball-bearings, &c., &c., have shown wholly unsuspected ability to convert their plants into war-supply factories, and with innumerable others have helped to make the United States the greatest manufacturer of war materials in the world.

The industries engaged in the production of raw materials for these manufacturing establishments have responded *pari passu* to the demand for their products. For example, the output of copper in a single month (May, 1915) surpassed all previous records by more than 25,000,000 pounds; and despite the enormously increased production, the price of copper increased eight cents per pound in four months. The production of zinc and lead was greatly increased, and yet their prices, too, increased by 25c. and 3½c., respectively, attaining heights that have not been touched since the Civil War. Australian zinc mines, which formerly sent their metal to Liège, Belgium, have been sending it to the United States, where it is refined and then exported to Europe. The town of Joplin, Missouri, has sprung into international importance as a leading center of zinc or spelter. Even the manufacture of benzol, a necessary ingredient

in certain kinds of explosives, has sprung up in the United States; and the Lackawanna Steel Co., by the utilization of coal smoke, is said to have become the largest manufacturer of benzol in the world. Steel is once more king, and its output of near 1,000,000 tons a week has restored pay envelopes to 200,000 idle men in this single industry.

So enormous has been the investment of new capital and labor in the business of manufacturing and exporting military supplies, that existing plants have been largely extended, and new villages and towns have sprung up as if by magic to meet the demand. One of the most striking illustrations of this phenomenal growth is that of North Eddystone, Pennsylvania. Here the Remington Arms Co. of Bridgeport, Connecticut, and Ilion, New York, has had erected for it a building that is said to be the largest in the world. It covers fifteen acres of ground, is seven stories high, and its "glistening mountain range" of steel and tile is all under one great glass roof. It took the Baldwin Locomotive Works less than four months to erect this monster building for the Remington Co., and for several months past the 15,000 employés whom it shelters have been working extra time in the manufacture of rifles,—to the number of 1,500,000 per annum!

The Baldwin Locomotive Works, itself, accepted a contract for $97,000,000 worth of shrapnel shells; but since its original charter did not permit it to engage in this far-away by-product of locomotive making, it chartered a subsidiary company, the Eddystone Ammunition Co., and erected a second huge plant at North Eddystone for it. This building covers nearly fourteen acres, and turns out shrapnel at the rate of 20,000 rounds a day. The president of the company has planned to maintain this industry for at least five years; for he calculates that even though the present war does not last that long, the United States and other nations will demand the utmost

product of the plant for at least that term of years. More than a hundred locomotives are nearing completion for the task of transporting the rifle and shrapnel products of the two huge plants, and a great ocean pier is being erected to enable ocean freighters to assist in this task and in that of moving the powder manufactured just across the river by the Du Pont Powder Works. The Du Pont Company, too, has come upon booming times, and is reported to have enough orders already in hand to keep its various plants running at top speed for five years. There is small wonder that in the enlargement of one of its plants, it found it necessary to create a new village of more than 300 houses, or that it has been obliged to apply to the State of New Jersey for a grant of *five miles* of the Delaware water front at Penn's Grove and Gibbstown.

The rise of the Eddystone works has brought an army of some 40,000 skilled workmen to the vicinity of this little town in Delaware County, Pennsylvania, and already the values of real estate in adjacent parts of the county are being "boosted" by this advent of a population of some 200,000 souls.

It is but natural that such abnormal development should have caused a wave of speculation to sweep across the country in these and many allied lines of industry. How wild and dangerous this speculation has become is illustrated by the fact that the purchase of stocks on the New York Stock Exchange increased threefold within three recent weeks; within one week, there were two "2,000,000-share days," and within the same short space of time, Bethlehem Steel gained fifty-four points and Crucible Steel twenty-three points. The common stock of these two companies, although no dividends had ever been paid upon it, increased within a year from $26 to $600, and from $22 to $83, respectively, while the stock of the Hercules Powder Co. jumped fifty points in a single day, and that of the Bethlehem Steel Co. seventy-

one points within twelve hours. Many stocks have largely increased their dividends within the year, while some have paid large ones for the first time. Under the "boosting" administered by war orders, the Electric Boat Co., for example, has declared a dividend of 12 per cent., which is the first since 1909. The Bethlehem Steel Co. was considered to be in a bad way, aside from its ordnance department; but so impressive was the acquisition of war-orders to the extent of $150,000,000 that the stock of the company has increased to such an extent that more than $15,000,000 has been added to its value. Great additions, of course, have been added to its plant; so that in this Pennsylvania *Bethlehem* there has arisen a war-supply factory which is surpassed the world over only by the establishments of Krupp in Germany and Creusot in France!

The year's "high records" in war orders, stock prices, dividends and prices, have had the natural result of combining certain industries into gigantic "trusts," one of which, a new "steel trust," promises to eclipse the $1,000,000,000 Steel Corporation which astonished the world a decade or so ago. The next logical and probable result will be for these American trusts to join the international trusts that bestride the world in the manufacture and sale of military supplies. Some faint idea of the far-reaching power and methods of these world-trusts has been given in speeches in the British Parliament. For example, Philip Snowden declared in the House of Commons, in 1914, that an "armaments ring" not national, but international, with international management and international stockholders, supplied the various European governments with military supplies; that members of the various parliaments were large stockholders in these concerns, and were personally interested in increasing the demand for their products in the various countries. Lord Welby, in the same year, declared: "We are in the hands of an organization of crooks.

They are politicians, generals, manufacturers of armaments, and journalists. All of them are anxious for unlimited expenditures, and go on inventing scares to terrify the public and to terrify Ministers of the Crown." Reference has already been made to the international newspaper campaign, financed by "the armaments ring," by means of which the demand for military equipment and supplies has been enormously increased.

But manufacturers of these materials are not only lured on by a real and factitious demand; they are also subjected to an enormous pressure from behind. That is, the host of stockholders and employés urge the manufacturers to the limit, for the sake of profits, wages and opportunities of employment. The investment of enormous sums of new capital in these plants has created a condition of affairs in which an exaggerated demand for their products is necessary for the realization of return, profits and dividends. It is declared by financial experts that, so large has been this diversion of capital and labor, this country would experience a terrific crisis, should the great war end to-morrow. Hence many a to-morrow will be needed,—either in the continuance of the war or in the increased demand for military supplies by the governments in time of peace,—before this return can be made.

Added to the stockholders' demand for "preparedness" as a means of protecting the new "infant industry," or of repaying and maintaining this enormous vested interest, "so necessary to the defense of the country," there will inevitably be added that of the tens of thousands of new laborers who have been drafted into it. The Baldwin Locomotive Works, for example, employs in ordinary times, even when trade is booming, only 19,000 men; by adding the Eddystone Ammunition Company to its business, it is increasing this number to 40,000. On orders from Russia alone, it is said that the company increased its employés from 7,000 to 12,000.

The Bethlehem Steel Company's war contracts enabled it to keep 12,000 men on its payroll during the first winter of the war, instead of its usual 3,500. These examples illustrate the amount of employment that is being offered,—in many cases by night as well as by day,—to laborers of every degree of skill, from lathe-turners up to ordnance experts of the United States Army, who have resigned their public office in order to accept lucrative positions with private firms, and who have been released by the government so that they may aid in "the development of industries designed to defend the United States."

The Du Pont Powder Co. has just distributed 2,000 shares of its stock, valued at $1,616,000, among its employés. The proposal to devote $3,500,000 to the enlargement of the Philadelphia Navy-Yard, so as to enable it "to build big ships," has been hailed with delight by the local newspapers, for the reason that "it would mean thousands more of workmen."

In view of such developments as these, it is not difficult to foresee the vastly increased political pressure which voters in such a State as Pennsylvania will bring to bear upon their representatives in Congress to procure for their districts government contracts for military and naval "preparedness"; nor is it difficult to foresee the lobby and the "invisible government" which the stockholders in these industries, scattered as they are throughout the nation and abroad, will maintain at Washington and other capitals, for the purpose of securing, by the use of graft if need be, and in the name of "preparedness," extravagant appropriations for military, naval and aërial purposes.

But many other industries than those which directly supply military necessities have been stirred to their depths by the campaign for preparedness, and are swelling the chorus of demand for it. For example, at the recent annual convention of the National Association of

Cotton Manufactures, the president said in his opening address:

"Military preparedness and industrial preparedness should go hand in hand. The sinews of war must be provided by the latter before the former can be developed to its full extent; and by commercial preparedness I mean not only the strengthening of those industries which would necessarily contribute supplies for a possible war, but all enterprises of manufacture, transportation and distribution, so that we can put behind any body of men enlisted in the nation's defense 'a united, prosperous, contented and determined population,' and be able to supply all the varied wants of our people and furnish the fullest support to the Government in any time of trial. . . . . It is the duty of every true American to stand by the President in his effort to preserve our national dignity and honor. On the other hand, may we not urge it as an equal duty upon the President to stand by us in an effort to bring back and maintain the business prosperity of the country? In the crisis that confronts us, all considerations of party advantage or sectional benefit must yield to the paramount necessity of placing the nation in a position of national industrial preparedness, ready to cope with any emergency that may arise, and the party which makes this its ideal will be the one to enlist the support of the American people."

The same cue was taken by the Federation of Trade Press Associations at *its* annual convention, on which occasion it passed a resolution urging "military preparedness on a permanent basis for the United States."

PROFESSIONAL AND SOCIAL PRESTIGE

Closely connected with profits and preparedness, are the social prestige and personal ambition of the military and naval coterie which finds its center in Washington. Justice Brewer, of the United States Supreme Court, gave as his dying message to the American people a sol-

emn warning against the danger that our national capital is becoming more and more the chief center of military and naval influence, and that this influence makes itself felt most powerfully in every crisis pregnant with the possibilities of war. With about 800 military officers located in Washington, and with them and their families in the social lime-light, the military "glamor" of Old World society is becoming more and more prominent in the capital of our Republic. In receptions at the White House, at the Inaugural festivities, and on almost every public occasion, the army and navy, in the words of Justice Brewer, "make the great American display." While this fact is certainly inconsistent with the democratic ideals of our New World Republic, it may safely be left, perhaps, to the common sense, or to the sense of humor and of the ridiculous, which have heretofore saved Americans from many of the follies and fripperies of European "high society." But the real and grave danger from this source is that these officers should form an invisible lobby, a military clique, socially powerful and backed up by "the soldier vote," and by means of it should exert a constant pressure upon Congress and the Executive both to increase armaments and to appeal to war as the only possible arbiter of international disputes. That this danger is a real and grave one, is illustrated by many incidents familiar to those who read the daily press accounts of "happenings in Washington." Among them may be mentioned the fact that a recent chief of staff of the American army declared that we are wasting time in striving to strengthen arbitration, and that the only true course for us to pursue is to make our military and naval strength so great as to be beyond danger of attack. Again, the "fighting" admiral who started in command of the American fleet which sailed, as "messengers of peace," around the world, declared that the fewer statesmen and the more battleships we have, the less will be our danger of hav-

ing war. Again, the country is filled with evidence of the feverish activity of Major-General Wood, Chief of Staff of the United States Army and Commander of the Department of the East, in furthering, to the utmost of his ability and with all the spectacular effectiveness which a sensational press can lend him, whatever movement, from "business men's camps" to military training in our public schools, that holds any promise of increasing the size of our army. The militarism of Europe has taught us many wholesome lessons; but there is none of them more needed at the present time than that which points out the pernicious, the fatal, influence of such military cliques as surround the Kaiser and the Czar. Here, if anywhere in a Republic, eternal vigilance is the price of liberty.

TO PRESERVE THE PEACE

But, while we must not shut our eyes to the existence and danger of the unworthy motives which are pushing the campaign of "preparedness," we must candidly acknowledge that there are back of it at least two worthy motives, however mistaken these may be. The first of these is the belief that the best and only effective means of preserving the peace is to prepare for war, or, as present-day casuists put it, to "prepare *against* war." This belief is a very plausible one and has salved many a man's conscience as he has worked for or consented to the increase of armaments.

Europe's Experience

It was the belief which "the master mind" of Bismarck put into practice in Prussia and forced upon the rest of Europe, making of the most civilized of continents an armed camp, a Twentieth Century Sparta. So firmly was this belief cherished, so thoroughly was it acted upon for a half-century, that in the years preceding the present European War, the enormous sum of

two billions of dollars per annum was expended by Europe upon its armaments,—all in the name of peace! For a generation, the militarists have insisted that the only preservative of the world's peace was the German army and the British fleet. The German Emperor, they declared, was *the* man in all the world who was most deserving of the Nobel Prize for doing most to further and maintain the peace of the world.

The first international peace congress of the churches was being held in Constanz, Germany, when the Great War broke out; and as the delegates travelled through the Black Forest and down the Rhine, and saw the tens upon tens of thousands of German soldiers being mobilized on the French frontier, they said to themselves: Now, at last, in the face of this most stupendous fact, this particular dream of the militarists will be shattered forever. The German army and navy, the French and Russian armies and fortifications, the British superdreadnoughts, and the vast military machine of civilization had been built up and confidently relied upon for a generation as the only certain means of preserving the world's peace; and now in one frightful moment they made possible and inevitable the largest and most destructive, if not the most brutal and vindictive, war in all the history of the human race!

For a quarter of a century, those statesmen and publicists who repudiated the "peace" dream of the militarists, and gave heed to the plain teachings of reason, prophesied insistently that Armageddon must inevitably follow upon "adequate armaments."

The Anglo-American Experiment

A century of experience, most significant though wholly neglected, even by the majority of Americans and Englishmen, taught the same lesson. This experience began at the end of the French Revolutionary and Napoleonic cataclysms, and just at the close of the American

war with Great Britain in 1815. At that time, the American minister at the Court of St. James was that shrewd, level-headed, Yankee diplomatist, John Quincy Adams. He learned in 1817 that the British government was planning to build war-ships on the Great Lakes so as to prevent another breach of the peace with the United States or to prepare for another invasion of Canada. He communicated with President Monroe in regard to the matter and was authorized to enter into negotiations upon it with the British government. Thereupon he wrote to Lord Castlereagh, the British Secretary of State for Foreign Affairs, as follows: "The increase of naval armaments on one side upon the Lakes during peace will necessitate the like increase on the other, and, besides causing an aggravation of useless expense to both parties, must operate as a continual stimulus of suspicion and ill will. The moral and political tendency of such a system must be to war, and not to peace. The American government proposes, therefore, mutually to reduce to the same extent all naval armaments upon the Lakes. The degree to which they shall be reduced is left at the option of Great Britain. The greater the reduction the more acceptable it will be to the President of the United States, and most acceptable of all should it be agreed to maintain on either side, during the peace, no other force than such as may be necessary for the collection of the revenue. The undersigned may confidently hope that this proposal, mutually and equally to disarm upon the American Lakes, will be received and entertained in the same spirit in which it is made, as a pledge of intentions sincerely friendly, and earnestly bent upon the permanent preservation of peace."

This statesmanlike offer was accepted in the friendly spirit in which it was made, Castlereagh replying: "As to keeping a number of armed vessels parading about the Lakes, it would be absurd. There can be no motive for it, and everything beyond what is necessary to guard

against smuggling is calculated to produce mischief." The two governments, accordingly, soon afterwards entered into the Rush-Bagot Agreement, by means of which it was provided that the armed forces upon the Great Lakes should never exceed four ships of one hundred tons displacement. In spite of numerous attempts by ship-builders, ammunition-makers, and political jingoes, on both sides of the border, and in both England and the United States, to abrogate this agreement and thus pave the way for profits, politics and preparedness, the agreement has been faithfully adhered to. There is to-day, on this "American Mediterranean," a single gun-boat of four hundred tons' displacement. Compare this police-boat with a superdreadnought of 31,000 tons' displacement, and it may be realized how effectually the Great Lakes are "unarmed." Not only along this part of the Canadian border-line, but throughout its continental extent of nearly 4,000 miles, there is not a fortress or a gun. And yet, despite, or because of, this rank "unpreparedness," we are celebrating to-day a Hundred Years of Peace with our great British neighbor.[1]

Would that poor old Europe had possessed, a hundred years ago, a statesman so level-headed and far-seeing as John Quincy Adams, and that it had been persuaded by him to a mutual limitation or destruction of armaments! Those "invincible" fortifications along the frontier between Germany and Belgium and France would never, then, have arisen to challenge the military and political prestige of the respective war-lords; those terrible Mazurian Lakes between Germany and Russia would not now be discolored and corrupted by the blood and corpses of tens upon tens of thousands of Russian and German youths.

In face of the plain teaching of reason and common sense, of the experience of Europe in reaping the most

[1] Back of Canada, of course, stand the British Empire and the British fleet,—"the mistress of the sea."

terrible of wars from armaments sowed to preserve the peace, and of the experience of the United States and the British Empire in preserving the peace between them for a hundred years in the absence of mutually menacing armaments, it may readily be understood how all but the rabid militarists have surrendered forever as a foolish fallacy and a wicked lie the hoary old belief that "adequate armaments" should be built up to preserve the peace, that civilized man should devote all the resources of Twentieth Century science to military "preparedness *against* war."

FOR A DEFENSIVE WAR

But there is one bulwark of the militarist creed still left. It is this: Since it is impossible in the face of reason and experience to prepare *against* war, both reason and experience bid us to prepare *for* war,—a war of defense. Mr. Orville Wright, for example, a distinguished but relatively very moderate advocate of preparedness, writes: "I believe that the possession of too much military equipment leads to war. The evidence of that is in Europe. But I do believe that this country should have enough war paraphernalia to protect itself while it completes more elaborate preparations." What a plausible, appealing argument is this! It is far more convincing to the average man, of self-preservatory instincts, than is the former rather altruistic argument that we should prepare for war in order to preserve the peace. Who is there who does not fervently desire to defend the country and his own fireside against the attack of a foreign foe?

It is true that never, not one single time, have foreign foes declared war upon us before we declared war upon them. It is true, also, that we have had many a dispute, some of them, and two in particular,[1] of grave, and even vital importance; but that in spite of the gravity

[1] The *Alabama Claims,* and the *Venezuela Boundary.*

of these disputes and of the bitterness of feeling which was created because of them, we have always found peaceful and effective means of settling them. Not so much, then, because of our geographical isolation, or our vast population and national resources, not even so much because of our peaceable intentions, may we look with reasonable equanimity on the future; but because our history in the past century and a quarter has proved again and again the efficacy of diplomacy and arbitration in settling our disputes with other nations. The fact that we have never yet been decapitated, in spite of a good many opportunities for it, is certainly no convincing argument that we will surely be decapitated in the future.

On the other hand, pacifists are reasonable enough to admit that because our Republic has heretofore taken the initiative in attacking its foreign foes, this is no convincing argument that we shall *never* be attacked in the future. They must frankly, however sorrowfully, admit that all things are *possible*,—especially in a war-maddened world. They must recognize, with whatever sorrow or contempt, that many of our Republic's leaders have been thrown into a panic of fear by the "fate of China" and the "fate of Belgium," and that countless thousands of our fellow-citizens are following them like sheep to the slaughter.

It is true that China is by hundreds of years the oldest of all living nations; that it has outlived scores of nations that were far better "prepared against war"; that it has succeeded on numerous occasions in conquering its conquerors by the simple and apparently beneficial process of absorption; and that it is still in possession of a large degree of vigor, and gives good promise of retaining its faculties and adding untold centuries of life to those which it has already enjoyed. It is true, also, that Belgium *was* "prepared against war"; that its preparations were enormously larger, relatively to wealth and population, than were those of its invader; and that it

would have been a physical impossibility for Belgium to have amassed enough troops and "defense" to have beaten off the attack of an empire tenfold as populous and with ten times its resources. If Belgium's "fate" has any lesson for the world it is that of the utter folly of so-called "preparedness against war," of armaments that are not and never can be "adequate" for purposes of successful defense.

China is despised also by those nations which, after a generation of stupendous "preparedness," have grappled their chains to their souls and cherished the illusion that they are invincible. He who lives will see; and in the end it is quite possible that some of the countries in the European War will be annihilated by the warfare which they brought upon themselves by putting their "preparedness" to the touch, and that Chinese students of a thousand years hence will read the story of their destruction.

But despite such considerations, it is only too apparent in our country and throughout the world to-day that fears have no ears, that panic cannot be stayed by reason. The Great War has laid its benumbing hand upon the minds of men, and subordinated their rational courage to the painful emotions which have surged up at the thought of shrapnel, gas, flames, airships, submarines and the tramp of armed millions. To meet the rush for "preparedness," then, it is necessary to concede that we may be called upon to engage in a defensive war.

A "Defensive War"

The term, a defensive war, or war for defense, has a simple and plausible sound, but it is by no means so simple and convincing as it seems, especially in these days of complex international relations. For example, Belgium and France are regarded, by the world outside of Germany, as engaged in a defensive war, inasmuch as

they are engaged in endeavoring to repel actual invasion of their territory. But Germany insists that it, too, is fighting just as truly a war of defense, and that there is a difference merely in method and not in principle between its invasion of Belgian and French territory, before the Belgians, or the French and British, through Belgium, were able to invade German territory. Certainly, the German contention would appear to be a logical one that if you are going to fight at all, for defense as well as for aggression, you would be foolish to await an enemy's attack upon your territory. Ever since the days when the Roman Regulus "carried the war into Africa" against the Carthaginians, and Hannibal carried the war into Italy against the Romans, it has been accepted as a fundamental precept of military science that on defense as well as attack the war must be carried at once to the enemy's territory and kept there at all hazards. Even in street-fighting, a primary maxim of defense is said to be to "strike the first blow and strike it hard." Mr. Roosevelt, when President, declared himself in favor only of a war of "defense" for the United States, but at the same time insisted that our coast fortifications should be kept up in order that our navy might cut loose from port, seek out its opponent wherever he may be, and "hammer that opponent until he quits fighting."

A war for the defense of our own continental territory, however, is not the only kind of a defensive war that we might be called upon to engage in. Our Constitution, the courts have decided, has not followed our flag to Porto Rico, the Canal Zone, Alaska, Hawaii, Samoa, or the Philippines; but our fleets and armies would assuredly be sent to these distant points to engage in a "defensive" war.

We have made a business in the United States of producing enormous wealth; therefore, it is argued, it is a business proposition to build up a big army and navy

to defend it on land and sea. The wealth of such cities as New York, Philadelphia, or Boston exceeds the value of the territory of some of our States; hence a defensive war is even more necessary for it. England's navy has been often called "an indemnity bond behind every shilling's worth of property in the United Kingdom"; let the United States adopt the same insurance. At the end of this war, the new President of the Navy League declares, the United States will possess practically all the world's gold and an immense commerce; therefore, since treaties and moral obligations are nothing to nations that covet, let us prepare by means of a big army and navy to defend our treasures. "Why," another eminent prepareder inquires with finality, "be rich, aggressive, and undefended?"

But the wealth of this country about which the prepareders are chiefly anxious consists of the munitions plants and anthracite coal mines, ninety per cent. of which are located within a radius of 160 miles of New York. Since these, they say, are of immense value in themselves and constitute the chief ultimate means of the country's defense, they constitute Uncle Sam's *solar plexus,* and must be defended at all hazards.

From the point of view of American territorial defense alone, our task would be the protection, against bombardment and invasion, of about 20,000 miles of frontier; while only the blue sky above is the limit of airship raids upon us.

Again, if we are to continue to assume alone the burden of the Monroe Doctrine and to preserve territorial integrity and enforce popular government in the Latin-American Republics, our armaments are liable to be engaged in "defensive" warfare in every part of the Western Hemisphere.[1]

Again, the present war has illustrated, repeatedly and

[1] Cf. the author's "Monroe Doctrine: National or International?", New York, 1915.

in startling fashion, in what kind of a "defensive" war we might engage if we are determined to protect by our own strong arm the rights of neutral nations on the high seas.

The protection of our own citizens, again, whether they are travelling on belligerent merchant ships, or in foreign lands, or are engaged in commerce, education, missionary endeavor, or what not, under the shadow of foreign flags, may involve us in a war, fought in any quarter of the globe, but nevertheless a war strictly for "defense."

The demand for preparedness to defend our own firesides makes a strong appeal; but the men and societies who are making this demand are precisely those who insist on the broad interpretation of the word defense. They find that a defensive war is necessary to prevent the Japanese from "Belgiumizing" the Philippines, Hawaii, or California; to protect the Venezuelan frontier and all of South America against Great Britain,—after "Great Britain has embroiled us with her ally, Japan,"—to prevent Germany from infringing upon the territorial integrity of Latin America; to champion the rights of neutral commerce and to protect neutral lives against belligerents on the high seas; to avenge the massacre of American teachers in Turkey, or of American missionaries in China; to protect the honor of the American flag in Mexico; to assert the honor, dignity and prestige of the United States as a world power in every port and country under the sun.

It is entirely right and proper to defend all of these persons, properties and ideals, by the right and proper method; but the American people must not be led into a programme of preparedness on the specious assumption that preparedness is merely for "defense," and ends with the continental bounds and territories of the United States.

Colonel Roosevelt insists that our promises at The

Hague obligate us to defend Belgium and every other neutral state against violations of their neutrality. If the majority of our fellow-countrymen accept this interpretation of the conventions of The Hague, our armies will be called upon to engage in trench warfare the whole world over, and our navies will be summoned to fight, on all the Seven Seas, *this* kind of a defensive war. Captain Hobson insists that Great Britain and her ally, Japan, will some day disturb the balance of power in the Pacific, hand over China to the tender mercies of Japan, and destroy the open-door policy in the Orient. If the majority of our fellow-countrymen embrace this favorite scarecrow of the nautical statesman of Alabama, they may engage in a world-wide war to defend the mastery of the Pacific, the integrity of China, and the open door to American merchants.

V

PREPAREDNESS PROGRAMMES

GRANTED, then, that we may be attacked by, or, in the name of a "defensive war," may attack, a *victorious* Germany, Japan or Great Britain,[1] what should be the extent of our "preparedness," our "adequacy," our "efficiency"? In such a contingency, we should be called upon to fight, not a Mexico or a Spain, but a first-class military and naval power; to fight it possibly on any part of the earth's surface; and to fight it in Twentieth Century warfare. These fundamental considerations have evidently not been permitted to control the programmes for "efficient preparedness" and "adequate armaments" which are now being so vociferously advocated.

The air is filled and our ears are deafened by the parrot-like demand for "preparedness," "adequate armaments," "means of defense," etc., etc., while the vast majority of those making the demand have no more conception of the real meaning of these terms, or of the policy they call for, than a parrot has of the English language. Sometimes they can add to their vocabulary the words, "Swiss System," "Australian Plan," "New Zealand's Method"; but usually these, in themselves and in their application to American conditions, are mere shibboleths.

THE WILDLY EXTRAVAGANT AND INDEFINITE PROGRAMMES

Most of the preparedness programmes are characterized by vagueness, elasticity, extravagance. Anything

[1] It is to be presumed that even the most fearful prepareders would not anticipate an attack from the *defeated* party in the present war.

and everything which gives promise of increasing our armaments is eagerly welcomed by them. Nothing is too large to ask for; nothing is too small to take. The only definite thing about them is that the democratic inch acquired shall be converted as speedily as possible into the most numerous of militaristic ells.

How *big* must our stick be? How large *are* "adequate" armaments? To this question from the man in the street, who has to foot the bill, the bellumist replies: What an absurd and unpatriotic question! We do not know, of course, and cannot know precisely what we are trying to "equal" in our frantic pursuit of "adequacy"; for the sufficiency of numbers and the efficiency of fighters is as uncertain and incalculable as the shifting sands of the sea. How can we ever know definitely what are "adequate armaments," when projectiles irresistible this morning and defenses invincible at noon will probably be antiquated before the sunset of today or the dawn of tomorrow? But this we do know: we can never have too much of a good thing. Our army and navy and air fleet must be rolled up larger and ever larger until, if "adequacy" require it, every ounce of toiling muscle, every fruit of human industry, and every gift of the harnessed forces of mother nature are rolled up in them.

Then "adequate" for what or whom shall our armaments be? Let me know this, at least, begs the taxpaying man in the street. Now there, replies the bellumist, I can furnish food for your sentiment, imagination and fears, even though I may not satisfy your reason. Armaments must be adequate to defend the national honor, to maintain the prestige of the Republic against the effete monarchies of Europe, to assert the dignity of the United States as one of the world's "Great Powers," to flaunt the flag in every harbor, to let the Eagle scream across every ocean, to protect Uncle Sam against a possible world in arms, and to save the Union against a hyphenated Armageddon! Adequate for what or whom?

Why, for anything or anyone, for everything and all the world! Who but the pusillanimous or the treasonable would measure words or seek for definiteness when Old Glory is at stake?

THE INADEQUATE PROGRAMMES

On the other hand, there are numerous programmes for "adequate" armaments which are characterized by their utter *in*adequacy when measured by the fundamental necessities of "defensive" warfare, of warfare with a first-class military and naval power, and of warfare by means of Twentieth Century devices. Their advocates, who demand the defense of American territory, the Monroe Doctrine, the rights and privileges of neutrals and of humanity in general, give a striking illustration of "thundering in the preface and murmuring in the text," or of "first shaking their fist and then shaking their finger."

The American Security League solves the problem offhand by demanding an increase of 100 per cent. in expenditures on our navy (or $300,000,000 per annum), and 50 per cent. on our army (or $150,000,000 per annum). The Navy League follows the same line of least resistance or of no thinking, and demands an increase in naval expenditures to $500,000,000 per annum, and in military expenditures to $250,000,000 per annum, hoping thereby to support an army of one million men. Where the money for this increase is to come from, neither league deigns to explain, except that they both lean towards the issuing of *bonds*. Since the current deficit runs high into the millions, and we have already resorted to the collection of an income tax in time of peace to enable us to expend two-thirds of our revenues for military and pension purposes, the borrowing of money for the purpose of carrying out the military and naval programmes of these leagues will probably not

commend itself to the sound common sense of the American public.

A wholesome respect for this characteristic of the American public as a whole and in the long run, has undoubtedly helped some of the prepareders to moderate their transports when they begin to express in concrete terms their glittering generalities in favor of preparedness.

Even the arch-prepareder *par excellence* becomes very wary and moderate when he descends from his blithe and irresponsible pursuit of "the pacificists," and is requested to "get down to brass tacks" in advocating his policy of military defense and the financial basis of it. Give us a mobile army of 120,000, he says; that is, let us increase our present mobile force about fourfold. Then, give us a system of universal, compulsory training for our boys during the last few years of their education in the public schools, sending them afterwards for four or six months' training with the regular army, and then keep them in trim by ten days' training per annum for a period of ten years. As for solving the extremely complex problem of providing, in the face of the present revolution in naval and other warfare, an "adequate" navy, this erstwhile redoubtable gentleman gives us a striking illustration of the familiar policy of "letting George do it." "The Navy," he tells us, "must primarily be used for offensive purposes. Forts, not the navy, are to be used for defense. The only permanently efficient type of defensive is the offensive." With this conception of "defense" in mind, he states the naval problem as follows: "Our naval problem, therefore, is primarily to provide for the protection of our own coasts and for the protection and policing of Hawaii, Alaska and the Panama Canal and its approaches. This offers a definite problem which should be solved by our naval men."

What a decline and fall have we here! What a char-

acteristic laboring of the mountain that brings forth the mouse!

Our other ex-president appeals for "reasonable preparation," and gives his definition of that as follows: "First, an increase of our navy tonnage as rapidly as possible by 30 per cent. and an immediate increase of the personnel of the navy by nearly 20,000 sailors and 900 officers. Second, an increase in ammunition for our great coast defense guns, the making of a few 16-inch guns, and the defense of the Chesapeake at Cape Henry. In addition, an increase of 10,000 trained coast artillerymen and 600 officers to man the coast defense properly. Third, an increase in our regular mobile army of 50,000 troops and a quadrupling of the supply of educated military officers. We should adopt a reduced term of enlistment, with inducement to the formation of a reserve of trained men."

The ex-president of a New England university advocates the improvement, without increase, of the army and navy "in the light of the present war." He is skeptical, however, as to the wisdom of the plan to reduce the term of enlistment in the army, as proposed by General Wood, to one year or even six months, so as to graduate a large number of men each year from the regular army into the reserve force; and prefers the Swiss system of universal enlistment and a training of a few weeks during each of a term of years.

The chairman of the Senate Committee on Military Affairs proposes an increase in the army by 25,000, or to 125,000 in all. The chairman of the House Committee on Military Affairs is also for "a moderate increase" in the regular army, and also for the creation of a reserve force,—provided the latter is financially practicable, of which he is doubtful.

The Secretary of War advocates "reasonable preparedness" and inclines to the belief that "a well-trained body of four to five hundred thousand citizen-soldiers im-

mediately available, together with our permanent force in the regular and militia establishments, will give us reasonable guarantee against hostile invasion of our territory. In reaching this conclusion, due weight must be given to the coöperation of our navy and our land coast defenses." As for the regular army, the Secretary thinks that it will suffice to fill up the ranks in the existing organization by the addition of 25,900 men; and he is optimistic enough to believe that this will require but few or no additional officers and only 33 per cent. additional cost per capita.

The Secretary of the Navy is evidently reluctant and non-committal on the question of "preparedness." He has been prodded and lampooned to an extraordinary extent, but has evidently made up his mind to go no farther than his official position strictly requires him to go. The plans which he is preparing, in coöperation with the General Board of the Navy, will be presented in full at the next session of Congress, and are briefly discussed in a later portion of this treatise under the topic of the Navy. They are concerned chiefly with increased speed, submarines and aircraft.

The President has had his hands full with the extremely difficult task of insuring respect for neutral rights by means of diplomatic and legal measures, and at the same time of preventing the "prepareders" from pushing him and the country into a resort to warfare to secure this respect. He refused point-blank to summon an extra session of Congress to consider "preparedness," but yielded to the prevalent clamor so far as to call for reports from the Secretaries of War and the Navy on the present actual condition of the national defenses. Upon the basis of these reports he is now endeavoring to make up his mind as to what measures, if any, he will bring to the attention of Congress in its next regular session. Unfortunately, the military and naval experts are working at cross purposes, and the President has

been confronted thus far with inadequate, extravagant, or conflicting "expert testimony." Unfortunately, also, for a scientific answer to the problem of "preparedness," this problem can be illuminated only to a negligible extent by the military experience of the past; and present preparedness has but little relation to future needs; while the whole art of warfare has been so thoroughly revolutionized in this present war as to warrant but small reliance upon military science as it has developed under wholly different conditions.

It is safe to assume that the President will do his utmost to keep down to a minimum the manifold plans to increase our armaments; for he must realize that whatever Congress does will be done merely as a concession to popular clamor, or as an assuagement of the temporary popular anxiety that has been so cleverly worked up by exploiting the "frightfulness" abroad. The President must realize also that these plans for "preparedness," even the wildest and most extravagant of them, are as far from real "adequacy" as is—Tipperary. The palpable confession of the prepareders that "we don't know where we are going, but we are on the way," can assuredly make but small appeal to a man of the President's mental calibre.

Let us compare the obvious needs of a genuine emergency with the current programmes for meeting them. The meaning of "defensive" warfare in our time, has already been indicated.[1] A war with a first-class military and naval power, waged with Twentieth Century devices, would find its theater on the land and under it, on the seas and under them, and in and from the air.

[1] *Infra*, p. 67.

VI

PREPAREDNESS ON AND UNDER THE LAND

THE programme in this field deals with the standing army; the reserves; the militia; the Continentals; "trained" schoolboys, college youths and business men; guns and ammunition; entrenchments; bases of operations; and fortresses along the frontiers.

A. THE REGULAR ARMY

A standing army of professional soldiers is regarded by genuine military experts, like Von Hindenburg and Kitchener, as the only really effective "arm of the service." They look with hearty contempt upon "uniformed mobs who pretend to be soldiers." The military experts of our own country point with pride to the work accomplished by the regular soldiers in our various wars, and view with alarm the American tendency to rely upon volunteers. They declare that our government has been guilty of murder, from the Revolutionary to the Spanish War, inclusive, in sending out untrained troops to be shot down by professionals. Hence, to be *adequately* prepared, is to be equipped with a professional army.

How Large Should it Be?

How many regular soldiers have we? How many do we need? Our army numbers at the present time about 90,000 men. Many of these are on garrison duty or in our island possessions. In the Philippines, Hawaii and Alaska, we have about 18,000 men; Japan, we are told, would attack with not less than 100,000. There are 1,200 miles of coast on the Pacific to defend. In the whole United States, we have an effective field force of

less than 30,000 men; less than 10,000 of these are at their home or permanent stations, the rest being scattered along the Mexican border, in Colorado, etc., at fifty-two widely separated points. Even Mexico, we are told, has 85,000 effective troops!

Shall we *double* the number of our mobile force, and make it 60,000? Shall we *quadruple* it, and make it 120,000? Why, in the present war in Europe they are *capturing* 120,000 men in a single battle. In a single Russian campaign, the Germans carried off more than 200,000 prisoners; before the first eight months of the war had elapsed, they held 812,000 prisoners on German soil; and by the end of the first sixteen months they hold more than 3,000,000. This is not capture; it is *immigration*. Sickness alone would dispose of our 120,000 men. For example, during the first six months of the Gallipoli campaign, 78,000 British soldiers were returned to their homes because of illness. Thanks to modern medical, surgical and sanitary skill, the number of men carried off by disease is now very small as compared with the number of killed and wounded, whereas in former times the reverse of this was true. As to the number of killed and wounded in the present war: the Allies have lost 6,700,000 men, 5,600,000 of whom were killed or permanently disabled; the Austro-Germans have lost 6,350,000 men, at least 5,000,000 being killed or permanently disabled. More than 2,000,000 men are reported as simply *missing!*

Evidently, we can no longer think in terms of tens of thousands; or even of hundreds of thousands; the warfare of our time is carried on by *millions*. In our Spanish War, seventeen years ago, we had a total loss by death of 2,910, and 2,604 of these died from disease. In our Civil War of a half-century ago, our largest number of Union soldiers was 1,050,000 men, all of whom but 50,000 were volunteers or drafted men. The Austro-Germans have *lost* six times as many; while the men under

arms in Europe number more than a dozen times as many. An attaché representing the United States army in Europe declares that there they have more than 600 well-trained army corps, while we have less than one!

Even before the great war began, Germany and its allies had a peace strength of 1,400,000 trained soldiers, and a war strength of 7,200,000 trained soldiers; while Great Britain and its allies had a peace strength of 2,250,000 trained soldiers, and a war strength of 9,660,000 trained soldiers.

In the face of these stupendous facts, the recent Chief-of-Staff of our army advocated 205,000 men in our standing army and a total available force (militia and reserves included) of 800,000 men. This would mean an increase of 100 per cent. in the army and 400 per cent. in the militia. Would it be truly *adequate?*

The present Secretary of War proposes to increase the regular army to 143,843 men, thus giving to the island possessions about 49,000, and to the continental United States about 95,000 men; to these he would add a "Federal citizen army" of 400,000 "Continentals," and retain the 120,000 existing State militia. Will this increase of about 30 per cent. in the regular army and about 450 per cent. in the "citizen soldiery" be truly *adequate?*

The General Staff of the Army advocates 250,000 regular troops permanently with the colors, a reserve of 300,000 fully trained men, and a citizen force of 1,000,000 men with at least one year's training. The National Security League, with much and ardent alacrity, has changed its original demand for 1,000,000 men to 1,550,000 men, to meet the General Staff's view, and other exponents of the prevalent hysteria have "gone them more than one better." For example, a Philadelphia clergyman, preaching a Thanksgiving Day sermon in the City of Brotherly Love, not long ago, expressed such gratitude for America's exemption from the great

war in Europe that he demanded the immediate increase of our standing army to *five millions* of men, so that it might be adequate to cope with European armies of equal size in case they should direct their conquering footsteps towards our shores!

Where Shall It Come From?

Now, in considering such programmes for the acquisition of adequate preparedness, we are confronted by at least two questions of a very practical kind, namely, Where are these millions of professional soldiers to come from, and, What would be their cost? It is true that the United States, with a total population of about one hundred millions, has twenty millions of men between the ages of eighteen and forty-four years, and seventeen millions of these *might* be converted into real soldiers. But where are these millions of men to come from? Are they to be taken from the productive paths of American industry, and the *women* be permitted to do their work? That is the way they solve the problem in the Old World; but it was to escape precisely that sort of thing that our fathers came to these non-militaristic shores.

What Would It Cost?

As to the cost,—in *dollars,*—of such a policy, it may be estimated from the fact that we expend upon our army establishment the sum of $1,314 per soldier per annum. All things come high in the United States. The French, German and British armies cost $291, $306, and $378 per soldier per annum, respectively. The German army, which was ten times as numerous as ours before the war, cost only twice as much per annum. Belgium, with an army four times as large as ours, maintained it at one-eighth the cost.

We could probably apply to our army the economy of large production, if it were greatly increased in size, and might reduce its cost to say $1,000 per man. But the

bill would still be decidedly heavy. For example, an army of 5,000,000 would cost at this lowered rate the sum of $5,000,000,000 per annum,—or the yearly price of thirteen Panama Canals. An army commensurate with the ideas of our General Staff would cost $250,000,000 per annum, *exclusive* of the cost of 300,000 fully trained reserves, and 1,000,000 men with one year's training; that is to say that in every presidential administration we would expend upon our army the sum total of our entire national debt, which we have been struggling for the last half-century to wipe out!

Even the more moderate plan of the present administration would require the expenditure on the army of *one billion* dollars within the next five years. And yet, in spite of such enormous expenditures, the military experts insist that our army would be absolutely unprepared to cope with a first-class enemy,—a victorious Germany, for example,—in Twentieth Century warfare.

We have increased the size of our army fourfold within the past sixteen years, and have spent upon it five times as much, proportionately, as Germany has spent upon its superb fighting machine. We are now urged to increase our army within the next five years by anywhere from 1,500 to 5,000 per cent., with the emphatic assurance that even then it would not be truly adequate to cope with its most powerful enemy.

What, then, *is* an "adequate" army and an adequate expenditure? Our military experts do not, and cannot, *know;* and they dare not tell us, publicly at least, what is their nearest *guess.* All of our historic traditions, national prejudices and democratic ideals are arrayed solidly against large standing armies as the prime source and chief support of tyranny. Never yet, thank God, has there been room beneath the Stars and Stripes for the mailed fist, the spurred heel, the war lords and serried ranks of the Old World's military system.

B. THE RESERVES

The American antipathy to a large standing army has been observed, even to the extent of neglecting a reserve army composed of former professional soldiers.

Our Unpreparedness

It is true that there has been some feeble legislation designed to bind former professionals to the colors and make them available in time of war. But so feeble has this legislation been, that it has resulted in building up a reserve army of just *sixteen men!* A congressman especially prominent in the campaign for preparedness, joyfully seized upon this pregnant fact and attempted to rub it in to the American consciousness by giving a much advertised dinner at his home in Washington for "the entire reserve army of the United States of America." Eight of the sixteen soldiers accepted his invitation and partook of his hospitality. Even the rumor that at this dinner grape-juice was to be eschewed and Gambrinus was to sit next to Mars, was not sufficient to mobilize two members of the reserve army from California and Porto Rico and six others from Indiana, Pennsylvania and New York.

Let us try to imagine our reserve army of sixteen men called out to defend this great Republic from invasion by the 4,430,000 reserves of Germany, the 3,300,000 reserves of Russia, the 1,610,000 reserves of Austria-Hungary, the 950,000 reserves of Japan, or even the 476,500 reserves of Great Britain! Is there any wonder that we are trembling with fear in our boots? And the worst may yet be to come. For, although these possible enemies of ours are killing off their soldiers (reserves and otherwise) at a rather lively rate at present, still the *victors* in the war will probably have a few hundreds of thousands or even millions left, and these will be not

merely reserves trained in time of peace, but veterans seasoned in the greatest, most scientific war in history.

How Many Do We Need?

What is being done to meet such unparalleled emergencies? Well, the present Secretary of War proposes that the term of service of the regular soldiers be reduced from four years with the colors to two years with the colors, and that, the term of enlistment being fixed at six years, the other four years be spent in the reserves; also that the Continentals,[1] after serving two months yearly for three years with the colors, be for three more years in reserve. By this process of graduation from the regular army and the Continentals, the reserves are expected to increase at the rate of 100,000 a year. But this increase would not commence until the end of three years after the adoption of the plan; and meanwhile, and for many a year afterwards, we should be a long, long way, in the item of reserves, behind Germany, Russia, Austria-Hungary, or Japan.

As to the cost of this wholly inadequate plan, some idea may be gained from the fact that the reserves are to be not only subject to call for war service, but also required to attend manœuvers,—for which, of course, they will be paid; and from the further proposal that, in order to promote enlistment in the regular army, the recruit who has shown the required proficiency may, after one year's service with the colors, pass to the reserves; thus remaining for six years of his enlistment on the reserve force and the pay-roll as well.

It is just such proposals in the preparedness programmes that necessitate the demand, even from our relatively moderate Secretary of War, for more than *one billion dollars* to be spent on our army during the next four years. Surely Ben Franklin would say: We are

[1] See page 89.

spending too much for our whistle,—especially for a whistle than won't *blow*.

C. THE STATE MILITIA, OR NATIONAL GUARD

Yielding to American opposition to "adequate" standing armies, our military experts have sought to procure adequacy by other means. The most familiar of these means has been the creation and maintenance of a body of militia in each of the States. This has been regarded by many civilians as the chief bulwark of our nation against domestic treason and foreign foes. But it is now declared to be only a broken reed.

Its Defects

First, it has been discovered that even the men who have joined the militia do not take seriously their duty to become prepared. Of the 120,000 militiamen enrolled, only 50,000 appeared last year for practice at the rifle-ranges; 47 per cent. of those armed with a rifle did not appear at the ranges; 31,000 did not go to the annual encampment; 23,000 did not even appear for inspection.

Again, the number enrolled is held to be wholly insufficient. The recent Chief-of-Staff advocated the increase of their number by 500 per cent., or to 600,000 men. But how shall this be done? It is found that there is a wide-spread aversion to the militia, among laboring men, for the reason that it has been or may be used against laborers in their disputes with employers. Employers, on the other hand, are opposed to releasing their employés for ten days or two weeks of training, not only because of economic reasons, but also because of their distrust of "tin soldiering." Either enlist in the regular army and become a real soldier, they say to their laborers, or stick to your job and don't try to become half-soldier and half-workman.

Proposed Remedies

During the present preparedness campaign, pressure has been brought to bear upon employers in behalf of the militia, and some of them have offered inducements to their workmen to join the militia. But even the enthusiasts have lost all hope of largely increasing the militia in this way, and have come to the conclusion that "there is just one way to get men down to the hard work necessary to become trained militiamen, and that is by *paying* them."

A *small* payment, it is generally recognized, will not be sufficient largely to increase the number of militiamen and their devotion to training. For example, the Governor of Illinois, at the Governors' Conference held recently in Boston, denounced as a beggarly pittance the $15 a year paid to militiamen, and declared that "if a militiaman were paid one dollar for every night spent in military training in his drill hall or arsenal, with a provision that he would receive no compensation unless he attended at least forty nights during the year, I believe that instead of 120,000 militiamen we would have 1,500,000 or 2,000,000."

This programme, which would carry with it an annual *minimum* expenditure for wages alone of from $60,000,000 to $80,000,000, evidently does not appeal to the present national administration. But the latter does propose to increase the Federal appropriation to the State militia, which is now $6,244,214 per annum, to $10,000,000 for next year. If this does not suffice, a movement is already on foot to increase it to $30,000,000 per annum. There is evidently a very inviting field of activity here for the congressional "pork-barrel." When it is recalled that pensions for the men who participated,—some of them in most moderate degree,—in our past wars, have increased to the handsome sum of $164,000,000 per annum, the question may well be urged: Why

not do as well or better for the men who will be called upon to defend us in our future wars? Better a live soldier who can fight than a wounded one, or the widow of one, who has fought some half-century ago. So runs the plausible argument,—direct to the Federal treasury.

As another incentive to enlistment in the militia, it has recently been provided that in case of war the militia of the States may enlist, individually or *en masse,* in the Federal army and be received on a plane of entire equality, all the rights and privileges of the army being extended to equivalent ranks in the militia.

In return for this Federal recognition and financial aid, it is proposed that Federal control of the State militia shall be greatly strengthened, both in the direction of equipment, training and command.

Shall It Be Discarded?

The well-founded American antipathy to too centralized and militaristic a national government appears to have been lost in the prevalent struggle for "preparedness." The right and duty of the States and the centralization of government in the nation have been subordinated to the demand for "efficiency." In consonance with this demand, it is even urged from many quarters that the militia should be taken entirely out of the hands of the States and handed over to the government at Washington. "In the early history of our country," it is argued, "when means of communication of all kinds were extremely slow, there may have been some excuse for a National Guard or State Militia as provided for in the Constitution. In these days of quick transportation, the forty-eight different varieties of militia should be replaced by a single national army such as is absolutely necessary in every country for modern defensive military operations."

The State militia, it is urged, has proved wholly inadequate in every war. A large proportion of it has refused

to enlist. In the Civil War, both North and South were obliged to offer bounties and to resort to conscription. In the Spanish War, sixteen States fell short of furnishing their quota of troops. The militiamen who have enlisted acted like raw recruits. In the War of 1812, they ran away from almost every battle; and 1,500 British soldiers, weakened by a long sea voyage, landed in Maryland, drove off 5,000 militiamen almost without striking a blow, and burned the capital city of the United States. In the Civil War, the military experts decided that about two years of severe training were required "to lick the citizen soldiers into shape."

Rendered practically useless by such glaring and inherent defects, why has the State militia been tolerated at all? A congressman from Massachusetts gives one reason for it, as follows: "I have sat [in Congress] like a coward for twelve years in silence because I was afraid to tell the 700 men in the National Guard in my district that I did not think they were an adequate protection."

The fact that it has been affectionately regarded as a happy medium between militarism and "unpreparedness" is another reason why it has not been discarded; and there are various others still. But the expert verdict pronounced upon it is: For more than a century we have tried and experimented with a militia system that has proved a burden in times of peace and a humiliating failure in times of war. To the lions with it! Adequate preparedness is not to be found along this line.

D. THE CONTINENTALS

While the present administration has refused to yield to the demand of the radical prepareders for the abolition of the State militia, and has increased the annual appropriation for it by 60 per cent., it has planned, nevertheless, to supplement it by a Federal force, to which the historically dear and honored name of the "Continen-

tals" has been applied. This "Federal Citizen Army," as it is also called, is to consist of 400,000 men, enlisted at the rate of 133,000 a year for three years. The recruits would enlist for six-year terms, but would be required to report for training only for short periods, probably two months each year, for the first three years, and during the remaining three years would be furloughed subject to call to the colors in time of war.

Where Will They Come From?

In launching its plan for Continentals, the War Department has made the following appeal: "It seems desirable to say that if those who are the employers of the young men of the country cannot by reason of age or situation in life give their personal service, they can do that which will be equally useful by encouraging in every way the participation of those in their employ in the plan of national defense. If they would so arrange their business that a certain proportion of those whom they engage could undertake this national service without sacrificing their personal interests, those who did this thing would be acting in the most public-spirited and patriotic manner possible."

At first sight, it might appear probable that there is sufficient "patriotism" among the employers and laborers of the country to enable Uncle Sam to procure 400,000 Continentals from a population of 100,000,000. Switzerland, with a population of only 4,000,000, has raised an army of 500,000 in this way.

Opposition to Them

But even before this plan is fairly launched, opposition to it has sprung up on various sides. It is urged, on the one hand, that there is a grave economic problem involved, both in the readjustment of wages and hours of employment, during the proposed two months of military training each year for three years; and in the raising

of the very large revenue which would be required to pay, equip, maintain and insure the 400,000 Continentals against sickness, accident or death while in service.

Again, the political aspect of the plan of increasing the Federal military forces by so large a number of men at the expense of the militia, or at the expense of the potential military power of the States, has been gravely urged as a menace to a well-balanced Federal and State government.

The State militiamen are naturally inquiring: Why should the State militia with its long history be virtually superseded by this new-fangled military force? And how can 400,000 volunteers be recruited for this new force within three years, when the State militia by most strenuous effort and varied devices has been able to recruit in many years only 120,000?

Again, from the side of the regular army comes the following criticism of the Continentals:

"The administration's reorganization plan begins at the wrong end. Instead of building up the regular army it merely aims at tripling or quadrupling our supply of untrained troops. It creates a great body of militia officers and thus dilutes the efficiency of the officers' corps as a whole. It sets up a demoralizing distinction between regulars and Continentals. If the Continentals are called into being we shall have two national armies, unlike in quality, training and spirit, and therefore exceedingly difficult to amalgamate in case of need. We shall simply follow out to another failure the disastrous American tradition of reliance on second and third class troops which has caused such a waste of blood and treasure in all our wars."

Would They Be Adequate?

Such criticism as this raises the question: Would the Continentals be truly efficient and adequate?

Learning to wear a uniform, to keep step on a march,

to carry and shoot with a rifle and to carry a kit, or, if in the cavalry, to ride a horse and draw a sabre; such is the popular conception of the military art. Of course any *American* can learn it, "in a jiffy," and be able to whip any half-dozen foreigners into the bargain.

But the General Staff of the army takes a very different view of this matter,—even in the United States,—and has inaugurated a campaign against such "squirrel-gun Yankeeism." To prevent men from becoming a hindrance to an army and to teach them to be of real military service, the General Staff estimates that not the two months' training proposed, but at least one year's solid training is absolutely necessary. It has outlined, month by month, the training required for handling and caring for the soldier's body and for his weapons, drill in battalions and regiments, camp life, patrolling, scouting, marching, intrenching, covering, assaulting tactics, teamwork in brigades and divisions, war-games, forced marches, signaling, bridge-building, erecting obstructions, rifle-sighting, range-finding, machine-gun practice, and a thousand and one other details of modern military efficiency.

The Swiss system, which seems to have inspired the plan for our Continentals, provides that the military training of the citizen soldiers shall begin with their early school life and include athletic exercises, rifle practice and two or three months' drill in camp. This régime lasts until the age of twenty-one; for eleven years after this, eleven days each years are devoted to training for service in the first line of battle; twelve years more are served in the first reserve, or *landwehr,* with eleven days' training in alternate years; four years more,—to the age of forty-eight,—are served in the second reserve, or *landsturm,* when the training is only occasional. The efficiency of this system has never been tried in war, and from the point of view of training it may well be ques-

tioned whether it could withstand such an ordeal as Belgium has been called upon to face.

Our military experts declare that six months, at the smallest possible estimate, would be required to equip, organize and make entirely ready for a really great emergency even such partially trained men. And in modern warfare, they insist, an enemy genuinely prepared, would progress so far on the way to success, in these six months, that his unprepared or partially prepared antagonist might as well concede defeat without a contest.

From the point of view of numbers, also, the question may well be raised as to the Continentals' adequacy. The Swiss system is proportionately far and away ahead of the American Continentals. On the Swiss basis, the latter should number 12,500,000 instead of the proposed 400,000! It is not strange, then, that the plan for the Continentals is condemned as wholly inadequate, or that the demand is being loudly made that we should increase this number, as well as that of the regular army, well into the *millions*. The Governor of Illinois, for example, declared in the recent Governors' Conference in Boston that "to rely upon the regular army of 100,000 and a militia of 120,000 men in case of war with a first-class power, would be an act of supreme folly. The citizen-soldiery must be reorganized, regenerated and enormously increased. *There should be at least a body of citizen-soldiery of 2,000,000 men.*"

E. THE SOURCES OF SUPPLY

In the course of this analysis of the regular army, the reserves, the State militia and the Continentals, the question has arisen in connection with each of them, Whence will the necessary increase come?

The Supineness of American Adults

Captain Mahan, a leading advocate for many years of "adequate armaments," voiced the discouragement

of the prepareders as to inducing hundreds of thousands or millions of busy Americans to submit to military training in earnest. On this point, he said: "A peaceful, gain-loving nation is not far-sighted, and far-sightedness is needed for adequate military preparation, especially in these days."

Hence, our far-sighted military experts, almost despairing of enlisting in their cause large numbers of adult Americans, who are absorbed in the task of performing the world's real work, have directed their most solicitous gaze upon the rising generation, in order that from it they may redress the deficiencies of the present one.

But they have not entirely despaired of the adults and, aided by the fear engendered on this side of the Atlantic by the war in Europe, they are doing their utmost to corral as many as possible of the 20,000,000 American males between the ages of eighteen and forty-four into the army. Under the stimulus of the Great War, a portion of the public is now responding eagerly to the baits which Major-General Wood in particular has held out so skilfully and enticingly to it. Although presumably appointed to attend to his own business of keeping in order and efficiency the army that the American people, through their representatives in Congress, have established, General Wood's chief activity for many months has been the capitalization of public panic for the increase of that army by hook or by crook.

The Army and Navy Journal has ably seconded General Wood's motions, and, to start the ball rolling, has called for the immediate mobilization of a volunteer army of 1,000,000 men, "not for the purpose of making war, but to avoid war by preserving neutrality and maintaining our honor and dignity." This, it argues, could not be considered in any quarter an act of war, because it would be no more than a precautionary movement in kind with that instituted by every neutral nation of im-

portance on the globe; Switzerland, Holland and Italy, it continues, have all mobilized and strengthened their defense plans, and nobody even suspected the two countries first named of having belligerent designs.

Possible Adult Sources

Compulsory military training and conscription are not yet seriously advocated, in public, at least, by many leading Americans. There are some among us who are so recreant to the traditions and ideals of our Republic, and so determined on "adequate" preparedness, that they are advocating even this reactionary step; while the Assistant Secretary of the Navy, emulating the chief bearer of his family name, has publicly advised the American people to "look carefully into the system of compulsory military training which the labor party in Australia has ordained for the Australians." The terror of the "Yellow Peril" has forced this system upon Australia, and it may yet achieve much in America.

Meanwhile, varied kinds of pressure and inducements are being brought to bear upon laborers and employers.

One typical proposal is to establish winter training camps for a half-million of the *unemployed,* who would enlist for two or three months between December 1 and April 1, with the privilege of reënlisting in the regular army or the Continentals; by this plan some optimists hope to build up an army, within ten years, of 3,000,000 trained men!

Another plan, adopted by several railroads east of Pittsburgh, is the offer, to any *employé* entitled to two weeks' vacation, of a furlough of two extra weeks for the purpose of joining a camp for one month's military training,—provided his department can spare him. These employés receive no pay for the extra two weeks; but the leave itself and the offer of free transportation to and from the camp are expected to induce thousands

of railroad clerks, enginemen, conductors and trainmen to acquire a month's military training.

Another plan is to have the State or Department of War equip each *volunteer fireman* with a military uniform and a modern rifle, and subject him to military drill at his firehouse twice a month. There are 250,000 volunteer firemen in the State of Pennsylvania alone, and these men are already trained to fight fire. "Given a knowledge of the manual of arms," the enthusiastic supporters of this plan declare, "a reserve force of firemen could be organized, who would in time of war only need to become acclimated to outdoor life and camp restrictions to be thorough and efficient soldiers."

Crime-fighters, also, in the form of *city-policemen,* are being trained in vulnerable New York to resist attack from a foreign foe. A public performance was recently given by New York's "finest," who showed just how a battery of artillery should be worked and captured. General Wood, who was present at the performance, was moved to say: "I wish we had a million men like these in our army"; and a newspaper commented upon it as follows: "The sham battle was valuable because no one who saw it could come away with the belief that such a maneuver could have been accomplished by any fraction of the million untrained men that we have been told would spring to arms in our defense between sunrise and sunset if our country were to be attacked by a foreign foe."

If, now, the disease-fighters in the form of our city *street-cleaners* could be trained in the use of a rifle as well as a broom, we might begin to feel some small measure of preparedness. But, on second thought, the firemen, policemen and street-cleaners are found to perform such useful services for our own people that drafting them off to fight against foreign foes might inflict irreparable damage upon us from the foes of our own household. Hence the persistent and varied effort to

call to the colors laborers engaged in less vital occupations.

In illustration of this effort may be mentioned the plan of certain *Bible Classes* in Philadelphia which, founded on "muscular," and even "prize-fighting, Christianity," have attracted many exuberant youths and others to them. These Classes established a training camp in their suburban headquarters and sent out an appeal to ten thousand of the city's business and commercial houses, legal firms, banks and patriotic societies, asking that a full holiday on Saturdays be given, so that their employés may receive a "week-end course of military training from Friday evening until Monday morning." The local newspapers were very generous in their accounts of this experiment, and the public was treated for several weeks to glowing descriptions of how the 150 "Bible Rookies" sprang from their cots in the early dawn, ate boiled potatoes, fish and prunes in true army style, were drilled in the rudiments of military tactics and in the use of rifle and bayonet, were visited by a large number of society folk from Philadelphia and New York, whom they "thrilled by their surprising fitness," witnessed a sham battle given for their benefit by United States marines, cheered the founder of their Bible Classes when he was promoted to the rank of corporal "for meritorious conduct and gallantry in drills," and listened to "noted military officials and statesmen," whose addresses on the aversion of France to military preparedness in 1911 and other salutary topics were interspersed with religious services and sacred solos.

It is hoped that such an example as this will be contagious and that the joint demand for Bibles and rifles will sweep over the country. To supply this demand,—at least for the purchase and use of rifles,—the National Rifle Association of America has been formed, with headquarters under the shadow of the capitol in Washington. Congress is to be asked to aid in the formation of

rifle clubs throughout the country, by providing for the construction of rifle ranges and for the distribution of Krag rifles, ammunition and target supplies. The Association, in a recent appeal to the public for financial assistance, states that it has already organized and has in active operation about 500 rifle clubs among civilians, sixty among colleges and universities, and about 200 among the public and private preparatory schools. It also states that its aim is "to popularize rifle shooting which is so necessary for national defense, and place it, in that respect, on the same plane as golf, baseball, and similar pastimes and introduce it as one of the recognized sports in the athletic curriculum of the colleges and schools of the country."

The Schools and Colleges

The great Promised Land of the military prepareders, however, is the American school system, public and private. They turn their glowing eyes towards it and descry a magnificent "army" of 22,000,000 students.

Exemption of the Infants and Girls

Nineteen millions of these, it is true, are in the elementary schools and are too young to be trained to shoot and be shot. In the high schools and colleges, too, the girls and young women would probably have to be made exempt from military training,—although this exemption has been repudiated by many women, one of whom declared recently at Vassar College: "A full battalion of girls, physically vigorous, well balanced and able-bodied, prepared and trained to fight and thoroughly armed, would be a great asset to our country."

There are still some old-fashioned people who believe that women trained to be mothers are an even greater asset to the country than if they were trained to be soldiers; and most of the prepareders, though for quite a

different reason, share this belief. A prominent advocate of preparedness, who is equally prominent as an opponent of "race suicide," declares that the sentiment, "I did not raise my boy to be a soldier," is on precisely the same moral level as the sentiment, "I did not raise my girl to be a mother." We may assume that this cryptic utterance implies that the moral level referred to is a low one. But the women champions of woman-soldiers aver that such critics, while they are opposed to race suicide, are not really opposed to the suicide of races, and that if the future fathers of the race are to be killed off in war, the future mothers of the race may as well prepare to be killed also.

Even the physical weaklings, with as good brains, and hearts that beat as warmly with patriotism, as any in the land, demand their share in preparedness. Especially in the mining districts, where many youths are under the regulation military height and physical fitness, there is said to be a strong demand for "bantam battalions."

Boys the "Real Fighters"

But "the best that ye have" is the demand of the Martians, and these are sought for in the best qualified pupils in schools and colleges. The President of the Navy League clamors for "a standing army of 1,000,000 young men between the ages of eighteen and twenty-one." In support of his thesis that boys are the real fighters, he argues as follows: "The standing army should consist of boys. There should not be a man, except the officers, more than twenty-one years of age in the whole army. I say this because in all real fighting it is being proved that the boys are those who make the real fighters. Instead of being a drawback, however, this fact makes the problem of our national defense simpler. We have proved that schools such as West Point and Annapolis not only create the best soldiers

there are, but that they develop remarkably fine, well-educated men, who make the best citizens when they go into private life. Every year there are 800,000 boys who reach the age of eighteen years in this country. It is admitted that the Government benefits itself when it takes upon itself the obligation of educating these boys. The answer to the military side of the problem is this: the Government must educate these boys, or the percentage of them required, at schools similar to West Point and Annapolis, and in this way equip them not only to make the United States formidable, but to take their places in the community as splendidly educated, splendidly developed citizens. There would be no loss of time on the part of the boys and there would be no economic loss to the country, but no nation on earth would dare attempt a war of conquest at our expense."

The Governor of Illinois, who demands a body of citizen-soldiery of 2,000,000 men, proposes to procure them primarily "by requiring every college and university in the United States which receives from any State or from the Federal Government any support or appropriation of money to give a military training to its students during the four years of the university or college course."

The 400,000 Continentals, proposed by the present administration, are desired to be from eighteen to twenty-eight years of age, and perferably from eighteen to twenty-one. The 20,000 officers required to command them are to be gleaned "from the regular army and national guard, from civil life, from military schools and colleges."

The Schools as Recruiting Grounds

With such demand and opportunity looming up before the youth of the land, the slogan has gone forth, "Every school-boy a soldier, every college-man an officer." The best, the easiest, the most logical, the cheapest method of creating an army is declared to be "to

take the boy when he is fifteen and give him four years of thorough military training with his academic work"; thus, "while educating for peace, prepare for war."

Train the school-boys in arms; take them at the age of fourteen, and give them instruction in the use of a rifle,—preferably a *wooden* one for the first year or two, —for, say, one hour every other day throughout their schooling; let a practical army man give the instruction, and the State supervise it so as to make it uniform in all schools, and pay the bill.

Such is the advice or demand heard on every side, and our statesmen have begun to respond to it. A State Senator in Pennsylvania, for example, has introduced a bill in the Legislature which provides for the making of military and naval instruction compulsory in all schools, public, private and parochial, seminaries, colleges and universities in Pennsylvania; all male pupils over the age of ten are to receive this instruction for one-half day during each week of every school term, unless disqualified by physical disability; in addition to this, encampments are to be held in June, July and August, each camp to last one week, and in Philadelphia and other towns and cities on navigable streams, naval instruction to be given; the expense, of course, to be borne by the State.

Military Training in the Schools

This recrudescence of the educational ideal of ancient Sparta has not yet become a wide-spread reality in our Twentieth-Century, American Commonwealth of Pennsylvania. But there are many voices raised, even in the State of William Penn and the Constitutional Convention, which declare that the *efficiency* of Germany is due, in education, industry, science and all the arts of civilization, as well as in warfare, to military discipline and training. What other system of education, it is triumphantly asked, equals military training in breadth, rich-

ness, individual development and coöperative organization? If a distinctively military system of education has worked near miracles for so phlegmatic a people as the Germans, what rich returns would it not bring to a nervous, energetic people such as ours?

Even the answer to such questions which comes from a Europe weltering in the blood, the manifold miseries, the political and moral debasement of millions, is not sufficient to drown these voices. The day is not far distant, they confidently predict, when a good, thorough course of military discipline will be required in every institution of higher learning in our land; then, and not until then, they assure us, will the American college be freed from the stigma that for years has been cast upon it, namely, that it does not properly equip men for life work.

As preparation for this "life work," some high schools have accordingly undertaken the task of properly instructing their pupils how to *kill*. The California Board of Education has recently announced that military instruction is to be provided as part of the public school course in that State. Wyoming is said to be proud of the way in which military training in its schools has eclipsed in popularity athletic sports and games, and has given its youthful citizens a new efficiency, especially in "wall-scaling."

A medical gentleman of Philadelphia, whose specialty appears to be the development of America's facilities for supplying wooden legs to the French and British soldiers who have suffered the amputation of their own legs, has recently offered to be one of a hundred men to subscribe $1,000 each for the purpose of introducing military training into the high schools of the city. This offer received the enthusiastic endorsement of Major-General Leonard Wood, who is one of the "international counselors of the Philadelphia Bible Classes," and the founder of those classes promptly subscribed the second

$1,000 to the proposed fund. Thus far, only one other subscriber is reported to have come forward; but it is hoped that the alumni associations of the high schools will at least establish rifle-clubs in their respective schools.

In colleges and universities, also, courses in military training are being introduced and extended, and rifle and revolver clubs are being formed. The presidents of some of our leading universities are leading this phase of preparedness, chiefly for the reason, as expressed by one of the most prominent of them, that *this* country should go in for "military strength which is available but not visible."

The strength and menace of invisible government of various kinds have made themselves visible to most thoughtful people in this country during recent years; future generations will scarcely thank these eminent university presidents for laying the foundations of another invisible government based upon "available but not visible military strength,"—unless, indeed, those generations shall have become entirely reconciled to and dependent upon militarism. The fear of the Gaul, the Slav, the Briton, etc., has been so thoroughly instilled into the minds of the Prussian youths of recent generations, and they have become so thoroughly trained in the use of arms and in the belief that by arms alone can international disputes be thoroughly settled, that they have built up a military strength available for their own purposes and visible in its essence and results to all the world.

The Case For and Against

In view of this plain lesson of reason and experience, it has caused considerable amazement that the trustees of the educational ideals of this republic should thus lend themselves to any movement which possesses the least possibility of Prussianizing and Spartanizing our educa-

tional system. There are various pretexts or excuses urged by and for them.

For example, they urge that there is a fine physical result in military training. When shown that athletics and free sports have a far finer physical result, they insist that military training supplies mental and moral values not to be found in other forms of education. This excuse is reminiscent of the good old New England housewife who refused to screen her home against flies for the reason that it would be flying in the face of Providence and that, by enabling her sons to suspend their individual fly-fighting, would make them so pesky lazy.

If the educational system of this Twentieth Century has no other and infinitely superior mental and moral equivalents for military training in school, it had better go out of business at once and surrender the whole task of educating both boys and girls to the officers of the army and navy.

Falling back upon the plea of necessity, the advocates of military training insist that we must train our schoolboys to defend their country against the attack of a foreign foe. When asked what they mean by "military training in schools," they speak confidently of calisthenics, keeping step, manœuvring, scaling walls, handling arms; they admit that a real rifle is dangerous in the hands of a boy, but say that he can "manipulate" a *wooden* gun for the first few years of his training.

Its Utter Inadequacy

In the light of modern warfare, how preposterously inadequate such training is. It is in truth no better than "tin-soldiering." Even *real* rifles are being antiquated by artillery that fires shrapnel shell twenty miles, by machine guns, by hand grenades; gunpowder is being discarded for cordite, turpinite and the rest of the —ites, for cholorine and other asphyxiating gases. Shall we go into the business of turning our boys into chemical

and physical laboratories and machine-shops for the purpose of giving them an *adequate* training in the Twentieth Century art of killing men? That is what the universities of Germany are devoting themselves to at present;—in time of a great war, it is true; but, if we are going to *prepare* for *real* war, it is difficult to see why our universities, colleges and high schools should not devote themselves to the invention and manufacture of man-killing compounds, devices and machinery in time of peace. Warfare is now so largely a matter of explosives and machinery that mere "drill" is like the progress of the pendulum.

Again, the utter inadequacy of any thorough military training in schools has been tacitly admitted by the advocates of preparedness, who have planned supplementary training in such things as summer camps and winter courses of correspondence. Even to the tyro in the study of the art of warfare as practised in our time, such plans are obviously ridiculous. Their adoption would mean merely one more futile and extravagantly expensive experiment in the long, unending series of experiments that have caused the squandering of hundreds upon hundreds of millions of dollars on our military and naval establishments during the past dozen years, yet which have left us, in the words of our military and naval experts, "*absolutely unprepared.*"

How futile such experiments in the military training of school and college boys would necessarily be, may be estimated by a consideration of real warfare in the trenches, in superdreadnoughts and submarines, in airships and aëroplanes. We have heard much in the East recently of how they have solved the problem of military training in the schools out in the State of Wyoming. That system, which goes through the familiar "drilling" and rifle-practice, culminates in what is described as a marvelous dexterity in *scaling walls.*

Now, we may picture in our mind's eye a regiment of Wyoming youths carrying a defensive war against Ger-

many into the enemy's territory. They cross the Atlantic with its mines and submarines and part of a continent bristling with intrenchments. "Somewhere in Germany" they would find at least two walled towns to be captured by them,—not of great political or military value, but still provided with walls; and there they would find, also, a few forts, likewise provided with walls,—and with other equipment as well. They would doubtless advance with all possible bravery and with all possible perfection of goose-step and maneuver across the landscape towards the coveted wall. But before they could arrive within ten miles of it, some such machine as a 42-centimeter "Chubby Bertha," mounted on top of the wall or behind it, would hurl a lyddite shell, or a Zeppelin, hovering a mile or two in the air, would drop two tons of explosives, upon the gallant regiment and blow it into fragments. Were it not trifling with a grave subject, it might even be said that such a regiment of trained Wyoming youths would be but as dust in the balance against the Chubby Berthas of Essen. But this is running the theme into the ground.

Sparta, Prussia or America: Which Shall It Be?

Successful warfare in our time is in sober earnest a most complicated science and a most difficult art. It is a profession in itself, and the business of professionals. Shall *this* kind of professional training,—the training to kill,—be placed in our schools and given to children and youths before they have learned the art of living? Even training in the science of medicine and the art of healing is to be given only after a broad training for life has been secured in high school and college.

Ancient Sparta urged the plea of necessity, of preparedness for defense, and devoted its schools, its industry, its religion, its government so consistently to defense that at last there was nothing left in Sparta *worth* defending, and for many centuries it has been a country

village and its name a byword of reproach for extreme militarism. Ulrich von Hutten, a scion of the old German nobility, became imbued four centuries ago with the spirit of the Renaissance, and appealed to his fellow-junkers to turn away from their immemorial occupation of warfare and military training, and to devote themselves to the new world of industry, literature, science and art. They were deaf to his appeal, and military preparedness,—continually followed by what it prepared for,—has been the key-note of German history through all the sad centuries since.

Shall our Twentieth Century American Republic adopt in earnest as its educational system the Spartan and Prussian watchword, "In time of peace prepare for War"? Or shall it confidently, unfalteringly enlist under the banner of, "In time of peace prepare for *Peace*"? Teachers and writers of history have but recently become emancipated from their slavery to drum and trumpet history; they have determined to accept no other false gods, but to devote their labors henceforth to the *real* things of life in the past. Shall we do less for the future? Shall we devote our schools to training drum and trumpet *men?* Or shall we train them for those great realities of life for which von Hutten and his compeers of the Renaissance plead so eloquently, and which the world, bleeding from every pore from the wounds of militarism, still so sorely needs? There *must* be no uncertainty in our answer. We will train our youths, not for the destruction of human life, the debasement of human character and the dethronement of civilization, but for all the constructive works of a true and beneficent civilization, not the least of which is a means for the judicial settlement of disputes between the nations. We will teach them, too, the indubitable truth that genuine military preparedness is by its very essence opposed to such civilization and judicial settlement; that it constitutes their chief obstacle; that they proceed along precisely opposite paths of prog-

ress and retrogression, and that we *cannot pursue them both.*[1]

The Problem of Officers

It is a truism, which is usually neglected in popular advocacy and consideration of preparedness, that we cannot have an army without officers, and that the larger the army the more numerous the officers.

How Many Do We Need?

Our present regular army has 4,572 officers. At its full authorized strength, it would require 154 more. If we adopt the administration's plan of increase for the regular army, it would need 2,514 more.

The 400,000 Continentals would require about 25,000 officers. The State Militia, or National Guard, has 8,223 officers. That is to say that we have at present about 13,000 officers, and require for the most moderate plan of proposed increase about 27,000 more. In addition to these, a reserve corps for all branches of the army is urgently demanded. The first problem is, therefore, how can we procure this number of highly trained men?

The chief defect in the British army, at the outbreak of the present war, is declared by military critics to have been the lack of well trained officers. Germany had more than 45,000 highly trained officers in reserve, ready to lead any kind of troops.

How Shall We Train Them?

The Military Academy at West Point, which has graduated about 5,000 officers in its century and more of existence, is to be increased in capacity as far as possible. But this would be far from sufficient, and various other plans are being advocated.

For example, General Wood recommended, when Chief of Staff in 1913, that 400 men should be selected each

[1] See pages 259 to 267.

year from the graduating classes of institutions in which officers of the army give military instruction; the men thus selected to be commissioned as provisional second lieutenants in the regular army for a period of one year with full pay and allowances, and discharged at the end of the year with a certificate of proficiency, if they merit it, as company, troop, or battery officers of militia, volunteer and the regular army in time of war. During the past half-century, there has been one college or university in each State which, in return for an appropriation, prescribes military training of a certain amount,—usually three hours a week for two years,—for freshmen and sophomores, and this may be continued as an elective for two years longer. Counting those in Hawaii and Porto Rico, there are fifty-two of these "land-grant" colleges and universities, and sixteen similar institutions for the colored race; in these, there are about 27,000 students enrolled for military drill. From these then, General Wood's 400 could doubtless be obtained each year. But the discrepancy between 400 a year and the 40,000 officers needed, according to General Wood, to develop the volunteer strength of the army, is a large one and would take a century or so by this plan to overcome.

The training in these "land-grant" colleges, also, seems to be far from adequate. A graduate of one of them recently criticised it as follows: "The military training was taken very much as a joke by the great majority of students and discipline was almost Zero. We had better discipline by far in the Boys' Brigade to which I had formerly belonged. . . It is an uphill job at the best [to enlist the students' interest in military training], for they are there for another purpose and consider military drill and the study of tactics as a necessary evil."

Another plan is advocated by a United States Senator who proposes to convert several army posts "which have no particular strategic importance," into training-schools subordinate to West Point.

Another Senator proposes to authorize the President to commission as officers of the reserve corps, not above the grade of colonel, such citizens as may qualify under the rules laid down by the Secretary of War. This plan is designed to recruit officers from men who have had training in the regular army or militia and retired to private life. These men are criticised, however, as having grown rusty in knowledge, skill and physique.

Another plan is embodied in a bill presented in the last session of Congress and approved by the House Committee on Military Affairs, which provides for the establishment in *each State* of a training-school with a capacity of not less than 300 students, and to which the State shall contribute $40,000 and the United States $80,000 yearly. By this plan it is estimated that 100 men would be graduated yearly from each of these schools, or 4,800 in all, and that within ten years we could procure by means of them nearly 50,000 officers for the reserve. That is to say, by the expenditure of some $50,000,000 at once, and an annual expenditure of $1,250,000 for ten years thereafter, we might place our officers' reserve in 1925 where Germany's was in 1914.

Summer Training Camps

Although the expense of such methods as these has no terror for our enthusiastic prepareders, they are entirely too slow for most of them who clamor to be prepared *at once,* lest "the German foe should land upon our shores to-morrow." Hence the great outburst of effort to take a short cut to the desired end by the establishment of "summer camps," designed especially for the military training of college students during their long vacation.

In the summer of 1913, the War Department maintained two such camps, one at Gettysburg and one at Monterey, California. The next summer, the number was increased to four, and the camps were located at Asheville, North Carolina; Ludington, Michigan; Mon-

terey, California, and Burlington, Vermont. This summer, the camps were again four in number, and were located at Chickamauga Park, Georgia; Plattsburg, New York; Ludington, Michigan, and the Presidio in San Francisco.

The number of men attracted to these camps thus far has not been very considerable,—about 300 in 1913, 700 in 1914, and 1,000 in 1915, and the training they receive is confessedly only a beginning or less. As one military critic,—a captain of infantry in the National Guard of Pennsylvania,—puts it: "There are no short cuts to efficiency in the art of military science. The attempt to qualify men as officers by giving them a course during the summer of four weeks' instruction is absurd. They can't even get a smattering of the requirements. It would be the height of folly and suicidal to entrust the lives and health of the men to officers with such meagre training." "You can make a volunteer soldier," says another critic, an officer in the regular army, "but you can't make a good officer in a year, any more than you can train a good lawyer or a good singer in a year."

The two summer camps established at Plattsburg, New York, in 1915, for business and professional men, have been subjected to the same criticism. They amount to little or nothing for real military training, is the verdict; even when followed up with "correspondence courses" during the winter, and with "upper classes" next summer for the graduates of this summer's course, they are still obviously inadequate. Their real purpose has been to serve as "the small end of a megaphone through which General Wood's words of military wisdom may penetrate to the uttermost ends of the land." This "military wisdom" is summed up in the words of the General to his Plattsburg "rookies," as follows: "I hope that when you go away from here you will use your influence as good citizens, and, in contrast to that of the masses, by whom you should not be influenced, to help secure good

legislation for the establishment of an adequate armament in this country."

F. GUNS AND AMMUNITION

Artillery

Although "the man behind the gun" is still of some moment, just as the factory-child behind the loom is still of some importance, the power of machinery has asserted itself in war even more than in industry. The gun-makers, especially, have had their "innings" in the preparations for and conduct of the present war, and have made many a "home-run."

Siege Guns

The results of their labors were first made visible to the world in the campaign in Belgium, when the fortresses of Liège and Antwerp crumbled into dust before their onslaught. The famous 42-centimeter, or 17-inch gun, affectionately known to the German soldiers as "the chubby Bertha," and the "Skoda Forty-two" of Austria, or as it is known in the trenches, "the Pilsener," caused so great a change in warfare one year ago that, military experts in Europe declare, "the infantryman no longer fights; but, when the big guns have finished the fighting, he merely occupies the trenches they have won." These great guns hurl, not solid shot, but immense shrapnel shells, the weight of which, in the case of the Skoda, is 2,800 pounds; penetrating to the depth of twenty feet in the earth, they explode two seconds after impact, and resemble in sound and results an earthquake. They kill every living thing within 150 yards, and many who are farther distant; the mere pressure of their gas destroys the partitions and roofs of "bomb-proof" shelters, and kills, blinds or maims scores of men who might otherwise escape the eruption of metal fragments, stones and earth. If the shells are fired from a short distance, their explo-

sion melts rifle-barrels as if they had been struck by lightning, while men are totally annihilated, clothing, flesh and bones, so that they are simply reported as "missing," since no proof of their death is found.

The Germans' success in bombarding Dunkirk at a range of *twenty-two miles*,—their gunners being guided by a *Taube* flying above the city,—has caused them to experiment in the construction of guns designed to reach from Calais to Dover; these guns, carrying a projectile weighing about one ton, and with a muzzle velocity of 3,700 feet a second, are calculated to have a range of twenty-eight miles, thus enabling them to command the English coast from Calais to Dover and a distance of six or seven miles inland. The French are reported to have completed and to have put into use for their terrific drive on Metz, a 55-centimeter (or 22-inch) gun which hurls a shell weighing two tons a distance of fifteen miles.

Field Guns

In Poland, the battle of infantry and cavalry disappeared before the battle of artillery. The biggest guns, which shot the straightest and pounded the defensive works the hardest, won the three weeks' battle for Lodz and the four weeks' battle for Warsaw. The battle of Riga and Dvinsk has languished because the increasing distance and the swampy nature of the ground has retarded the mobilization of the "Chubby Berthas" and their supply of shells. A student of the Russian struggle writes as follows:

"Infantry fights still go on. But they take a subsidiary character. Russian infantrymen and the German infantrymen no longer 'take' positions. The 'taking' is done by the guns. The infantry merely accept as a present the position which the guns have conquered. The guns pound trenches to bits and make them untenable. When they are untenable the infantry goes ahead and occupies them. Sometimes the infantry fails to occupy

them. This means that the artillery pounding has not been as severe as was expected. It does not mean that the attacker's infantry has been beaten by the defenders. The best infantry is the infantry of the side whose artillery pounds hardest. Infantry cannot even push further the victory of artillery. Its advance is limited to the actual few hundred yards which artillery has smashed and crushed. Before it can get further it must wait till its artillery again opens the door."

In East Prussia, at the Battle of Tannenberg, the artillery of an army corps was posted and concentrated upon a single brigade of the advancing Russian corps; the brigade was wiped out in twenty minutes, only 700 men escaping. Next, a division was attacked in the same way, and the battle, which began as a "mobile battle," was turned into a series of artillery massacres. Von Hindenburg is a "hero of artillery" in a far truer sense than Napoleon ever was, and has applied the use of the big gun to battles in the field as well as to the destruction of fortresses.

Mobility and Durability

The heaviest artillery, which was formerly immovable except along the lines of railroads, can now be moved from place to place and concentrated against fortresses or in the field, by means of motor-cars and good roads. By the use of cars provided with belted wheels, the big guns can now be fired from the carriages on which they are mounted, instead of being removed to platforms solidly constructed of wood and concrete, as was formerly requisite. The shells for the big guns cost about $4,000 each, and each shot does about $1,000 damage to the lining of the guns. Accordingly, the "life" of the "Chubby Berthas" is placed at about 120 shots, and that of the United States' 16-inch guns at 225, while the Austrian 12-inch guns are reported to be lasting,—probably with re-rifling,—for more than 1,200 shots.

The disintegration of the inner tubes of the big guns, which is caused by gases, is said not to be insuperable and has already been diminished. The 17-inch gun, for example, fires as many shots without spoiling the tubes as were fired ten years ago by the 12-inch gun. The inventor of the 17-inch gun is accordingly now working upon the construction of a *36-inch* gun, which by means of a replacement system, will diminish disintegration, and by means of specially constructed trucks can be transported by rail. The 17-inch mortars fire a shell four times heavier than the shells of the 12-inch guns, and the 36-inch gun is to fire a shell thirty times as heavy as that of the 12-inch guns! The Russo-Japanese War of ten years ago gave to a skeptical world the 12-inch gun; will the present war give us the 36-inch gun?

THE PASSING OF THE RIFLE

The Machine-Gun

This is indeed the day of big things, in war as well as in peace. The day of smaller things,—even of what has been idolized as "the deadly rifle,"—appears to be passing in the strain and stress of this greatest war in history.

The machine-gun and hand-grenade are declared to have sounded the rifle's doom. The artillery has replaced the rifleman from the front of the stage of battle, and even in his obscure corner he is rapidly being transformed. The machine-gun, which was formerly regarded as a weapon only of defense, has been proved during the present war to be a deadly weapon of offense as well. The Germans have replaced the old type, which required two men to move and handle it, by a new type which requires only one man. They have neglected the cult of the rifle, we are told by a British military expert, and are manufacturing machine-guns by the thousand, light enough for one man to carry, but more deadly than the concentrated fire of an entire company of riflemen. The concentrated

fire from one side of an English square, at the Battle of Waterloo, emptied less than a score of French saddles at effective range; one modern machine-gun would have destroyed an entire squadron. "The German prefers the machine-gun to the rifle," this expert assures us, "for not only does it enable him to sit down comfortably and squirt death at the foe as water is squirted through a hose-pipe, but also it gives him that sense of superiority, that pleasant feeling of security which the possession of a superior weapon always conveys to the fighting man. In modern warfare, and particularly in trench warfare, with its accompaniment of short, swift rushes against barbed-wire entanglements, the soldier who can fire a hundred shots to his opponent's five has ninety-five chances of coming out of the struggle unscathed. In the compilation of casualty lists the machine-gun talks with a hundred tongues."

Hand-Grenades

The Germans have accordingly prophesied that after this war the rifle will be entirely obsolete. The French, too, are of the same opinion, but believe that it will be replaced not so much by the machine-gun as by hand-grenades. A member of the French Legion writes as follows to the *New York Sun:* "Our new acting-captain, when chatting with some of the boys, told them that grenades were more useful in this war than rifles. The grenade soldiers (real grenadiers) did terrible damage in the First Regiment's fight. He intends to form a grenade section in our company. 'It is the weapon for this war,' he said, 'and is replacing the rifle. Before a battle, the artillery shell the enemy trenches for hours, and when the damage is almost complete the order to advance is given. The grenade men go first and throw their bombs into the trenches and complete the confusion. That's the only practical way in this warfare,' he wound up. So we are to become bomb-throwers. Well, it's all in a day's work."

The Modern Arsenal

This latest development in warfare is one evidence of an apparent return to primitive methods and obsolete weapons. Modern "grenadiers" are restoring to almost stationary warfare the almost forgotten art of throwing hand-grenades. Darts and arrows are again raining from the sky; helmets, masks, bucklers, greaves, shirts of mail, breastplates, shield, hand-bayonets, or "trench daggers," sling-shots, bows, catapults, spears, lances, scaling-ladders, and man's oldest implement, the spade, have all been restored to important rôles in this latest outbreak of man's earliest occupation. The use of and protection against aëroplane missiles, fragments of shells, curtains of fire, asphyxiating gases, and machine-gun bullets, have restored primitive fashions in horrible forms. Nothing that was devised in the past is being overlooked in the frantic search for means of offense and defense; while all modern devices are being developed to the utmost. The artillery,—field, foot, horse, mountain, seacoast, and siege,—howitzers, mortars, mitrailleuses, machine-guns, magazine-guns, rapid-fire guns, disappearing guns,—from 3-inch up to 17,—pistols, revolvers, automatic pistols, rifles, breech-loading and magazine,—such are a few of the myriad weapons available in the great arsenal of modern war.

Where Are Our Guns?

In the presence of such an array of facts and figures, the question is being pressed home upon us, Where are *our* Guns? Mr. Bryan has declared that in case of invasion "a million men would leap to arms overnight"; and Mr. Roosevelt retorts, "To whose arms would they leap?"

Artillery

We are said to have, on hand or being manufactured, 852 field artillery guns; the largest of these is the 6-inch

howitzer, and of them we have only 32. For the proposed increase in the regular army and for the Continentals, we need about 3,000 more. This is based on an estimate of three guns for every 1,000 men; but the present war has shown the need of increasing this estimate to five guns for every 1,000 men.

At the *beginning* of the war, Russia had 6,000 field guns, Germany 5,000, France 4,800. Von Hindenburg has 1,700 field guns and 400 mortars, howitzers and siege guns, and the Austrians 800 guns, in the Russian campaign alone. In the Battle of San, in Galicia, last May, the Austrians and Germans concentrated the fire of 1,500 guns upon one short section of the Russian lines. Even Bulgaria has 1,035 pieces of field artillery. In the single battle of Mukden, in the Russo-Japanese War, the Russian army had 1,204 field guns in action, and Japan had 922 guns on the same front; "yet any ordinary engagement in the present war makes the Battle of Mukden look like a peace conference,"—so say our experts.

The United States, therefore, is evidently in a very bad way. Our regular army has only 72 pieces for coöperation with the infantry, 24 to accompany the cavalry and 48 pieces of mountain artillery,—144 in all! But the worst is yet to come. General Wood testified that "the entire capacity of this country, working night and day, is 500 guns a year. Hence, almost a year would be required to supply the field artillery guns for one field army of a little less than 70,000 men; and, since no war within the past forty-five years has lasted for a year [?], our war would probably be over before we could manufacture an appreciable number of guns."

It is true that an expert and inventor, who is interested in the sale of machine-guns, declares that "in case of war we should have no need of 17-inch mortars or other great guns, such as the Germans are using, for our field armies. There are no forts for us to batter down. What we should require is weapons with which to kill men,—

particularly machine-guns." In view of the part played by big guns on the battlefields of the present war, however, it is obvious that this inventor's wish is father to his thought. General Wood, on the contrary, declares that "the fire of modern field artillery is so deadly that troops cannot advance over terrain swept by these guns without prohibitive losses. It is therefore necessary to neutralize the fire of hostile guns before our troops can advance; and the only way to neutralize the fire of this hostile field artillery is by field artillery guns; for troops armed with the small arms are as effectual against this fire, until they arrive at about 2,000 yards from it, as though they were armed with knives." When we recall that the effective range of guns like those on the *Queen Elizabeth,* or like the "Chubby Berthas," is 12,000 yards, or anywhere from seven to fifteen to twenty miles, we can see the force of the argument for other big guns to silence them. How many do we really need? How large should they be? How much would they cost?

With our 852 guns, completed and partly completed, we could equip an army of 170,000 men; if we need 5,000 in order to cope with the Germany of 1914, and can produce 500 a year, it would take us eight years to get ready on the single item of field guns. Or if we can increase our output of guns to keep pace with our increasing army, we should be obliged, in order to equip a very modest army of 800,000 men within one year, to increase our annual output of guns from 500 to 4,000.

These guns are expensive. The best of them,—and surely we want the very best for "adequate defense,"—cost $125,000 each; hence 4,000 more would represent an outlay of $500,000,000. This for the guns alone, and for a modest little army of 800,000. If we are to have an "adequate" army of some 5,000,000 men, our guns should cost us,—a sum as large as our entire national debt at the end of the Civil War!

Again, these guns are obsolescent. They deteriorate

very rapidly with use, and they are speedily outclassed by larger, longer-firing and harder-hitting ones. Our 16-inch guns defending the Panama Canal, for example, are believed or hoped to have a "life" of 225 shots. The French "75's" and British 4½-inch howitzers are firing from five to twenty-five shots a minute. With an estimate of one shot in ten minutes, our 16-inch guns would last about one day and a half of constant firing. The artillery duels in the present war last, we are told, for a *week* at a time. How many guns at this rate should we need for "adequate" defense, how much would they cost and how long would they be "adequate"?

Again, the increase in the size and range of guns has rivalled that in dreadnoughts. They creep along by *inches*, it is true, but every added inch or fraction thereof makes the entire existing outfit back-numbers. The 17-inch mortar, for example, fires a shell four times heavier than that of the 12-inch guns; the 36-inch gun, now being worked upon in Germany, is to fire a shell thirty times heavier than that of the 12-inch guns. What is "adequacy" along this line?

Machine-Guns

As stated above, some of our military experts believe that *we* are not so much in need of big guns as of machine-guns,—the best weapons with which to kill men. "We now have some hundreds of such guns," one of these experts remarks, "we ought to have at least 5,000 to start with, and it would take several months to make them." The Germans are reported to have had 50,000 machine-guns early in 1915, and are believed to have greatly increased their supply.

Our army officials insist that the present war has proved the necessity of increasing the supply of machine-guns by about 400 per cent., or from three to twelve for every 1,000 infantrymen and cavalrymen in action. If we are to supply our modest little army of 800,000 at this

rate, we shall need 9,600. If it takes three months to make 5,000, a half-year would be required to supply us with 10,000; and if we want as many as Germany had at the beginning of the war, we should need two and a half years to produce them. Long before that time, however, it might well have been decided that the new one-man machine-gun is far better than the old style; and then we should be in for supplying not twelve, but a hundred, for every 1,000 soldiers.

Rifles

As has been seen, there are many critics who regard the day of the rifle as past,—eclipsed by that of the machine-gun and hand grenade. There are still conservatives, however, who regard it as the main small arm. Our army officers demand five rifles for every man expected to be put into action. For an army of 800,000 this would mean 4,000,000 rifles, and for one of 5,000,000 men it would mean 25,000,000. We now have about 500,000. Shall we increase our stock by from 800 to 5,000 per cent., and what kind shall we invest in? A generation ago, all the great powers began to re-arm their troops with magazine rifles of small calibre, using high-power cartridges with smokeless powder. Ever since, there has been heated discussion as to which kind is the most effective. Shall we buy the Springfield, the Lee-Enfield, the Mauser, the Mannlicher, the Schmidt-Rubin, the Lebel, or the Arisakae? We thought we had solved the problem with the Krag-Jorgensen; but a few years after their adoption in our army, they were discarded and have been stored up for a number of years in government arsenals. This year, they are being given to the "Government civilian rifle clubs" which have been organized, under stress of "preparedness," in the various States by the National Rifle Association. There were 355,000 of these rifles discarded by the United States army, and it was an expensive experiment.

The present war is expected to develop the long sought automatic rifle; if so, it will doubtless have a try-out, unless the machine-gun and shrapnel outclass the automatic as well as the simple rifle.

Ammunition

Napoleon's belief that "God is on the side of the biggest battalions" has been revised by the present war to mean that "God is on the side of the biggest ammunition factories." The reason for this revision is seen in such facts as this, that the British army used more ammunition in the single battle of Neuve Chapelle than they used in the entire Boer War, which lasted nearly three years! To meet this demand for munitions, the belligerent governments have taken over the control of all the manufactories, in their respective countries, and those that could do so have imported hundreds of millions worth from neutral lands, especially from the United States.

War was once considered preëminently the profession of gentlemen of high degree; but now it is so much a matter of pulling levers and pushing buttons that it has become a promising field for the exploitation of woman and child labor, and its business of slaughter is one that smacks chiefly of the mechanic or machinist.

The "electrical wizard" of America has recently advised his fellow-countrymen to "maintain a potential preparedness for a war in which the fighting is done by machines, not by men." In explanation of this advice, he continues: "Consider the great amount of powder being shot off on the European battle front every day. I would have built great factories in which twice as much powder as that could be manufactured. I would locate and have stored away enough material to make up the powder. Then I would not make it. I would have everything ready so that within forty-eight hours I could go ahead turning it out. Then as to shells; I think it is a wasteful thing to make shells on lathes as they make them now.

We should get up shell machines for making them rapidly and in enormous quantities. Then I would grease the machines up and store them away with a great quantity of steel billets ready to be worked up on short notice. In fact, I would make my preparations potential and I would do it right away. The preparation should not be a military one at all. I don't like this military idea at all. It should be done solely on an economic basis, a business basis."

Powder

The chief difficulty with this genius's ingenious plan appears to be the obsolescence of powder and shot. "Trust in God,—and keep your powder dry" once seemed a sufficiently simple faith; but to-day "powder" is very uncertain, both in quantity and quality. So many new and more powerful explosives have been invented, that powder itself is believed by some experts to be on the verge of being discarded, at least in warfare.

The making of powder, too, has been revolutionized during the present war. Even in our neutral country, where invention has not as its parent the cruel necessity of warfare, two inventions have been introduced in the making of powder which are claimed of themselves alone to amount to a revolution in that industry. These are, first, a process by which smokeless powder can be made from the raw cotton within three weeks and seasoned in five days, while the process in use before the war required more than three months; and, second, a process which yields black powder with much less smoke than the old variety.

Another surprising development along this line has been the rise, or fall, of cotton from its status as a symbol of domestic peace to a munition of war as important as steel, lead or copper. The enormously increased demand for smokeless powder as a propulsive ammunition,—the power behind the bullet and the shell,—has caused an

enormous increase in the demand for cotton, which is the basis of this ammunition. As illustrative of this demand, it may be mentioned that every shot fired by a 14-inch gun uses up three-fifths of a bale of cotton. During the nine hours of the battle in the North Sea, 4,500 bales were shot away. In the first attack on the Dardanelles last March, 50,000 bales were consumed by the battleships of the Allies. One battery of the French field artillery shoots away cotton at the rate of 240 pounds (about one-half bale) per minute; and there are more than 2,000 of these batteries on the Western battle-front. As a result of such enormous consumption, it is estimated that, of the 14,000,000 bales consumed by the world this year, 3,000,000 bales will go into smokeless powder; while before the war, only 123,000 bales were consumed annually by the powder-making industry!

How much smokeless powder, then, or raw cotton, and what kinds of powders,—the nitrates or the chlorites,—shall we store up in order to be "adequately" prepared for the next record-breaking war that is said to be looming up before us?

Explosives

In the days when solid shot was king, the supreme task was to hurl the shot with the utmost possible force and velocity; hence powder, or propulsive ammunition, was of prime consideration. Now, when shrapnel shell is king, explosive ammunition is the chief thing needful. It is not so important how fast or with what force the shell is hurled, just so it gets there. It may be dropped from an aëroplane, or shot into the air and permitted to fall, or tossed from trench to trench by hand. Just make it "connect," and the shell will do the rest. It is no longer the *pounding* force, but the *explosive* force, that is the chief thing needful. Hence the application of the science of chemistry to the development of new explosives. Cordite, for example, so popular with the British;

tri-nitro-toluene (or "T. N. T."), which is one of Germany's favorite explosives; the "poudre Turpin" of the French, which is said to double the explosive effect of the shells fired by the 3-inch guns, or famous "75's"; lyddite, familiar to the public in the days of the Boer War; melinite, which an American claims to have invented, and a host of others which have raised might to the *n*th power of dynamite.[1] One of these is just reported as in use by the Germans on the Western front, and is thus described: "It is a new and extremely powerful explosive contained in missiles which the French soldiers call bottles of champagne, cylindrical in form and about as long as a champagne bottle; that is to say, about 12 to 16 inches, and about 5 inches in diameter. We suppose they are filled with liquid air or liquid carbonic acid. They are thrown a distance of from 300 to 400 yards,—this is the maximum,—and without any great initial velocity. You can follow the projectile through the air and see where it is going to drop. They are apparently thrown by means of mortars, and when they fall and explode the effect is equivalent to that produced by the explosion of a charge of 132 pounds of melinite. A single bottle of champagne makes a hole from 45 to 55 feet in diameter and 30 to 40 feet deep."

Which of these shall we invest in for our "adequate" preparedness programme? Or shall we wait until Mr. John Hays Hammond, Jr., has perfected *his* new explosive, which is said to melt the thickest armor-plate and pass through a battleship or a fort like hot lead through butter! Even then we could not rest content; for we should be certain to have some other chemist or physicist far surpass the worst that Mr. Hammond could do. It is *Twentieth Century* science that is being applied to warfare now, and Twentieth Century science has no such word as *finis* in its vocabulary.

[1] See page 217.

Gases and Liquids

The step from solids and near-gases to gases and liquids is an easy one in a chemical laboratory, and war has learned to take it in regular and practical fashion.

A fluid substance, resembling tar, has been set on fire and poured or sprayed into the enemy's trenches; or from behind the thick column of smoke engendered by it, attacks have been made. Thus, we have revived in modern form the ancient Chinese "stink-pot," which the less scientific Europeans of the Middle Ages dubbed barbarous and fiendish.

Blazing petroleum, also, poured down the trenches and into the dug-outs, "burns out" their occupants and spreads a curtain of fire and suffocating smoke, from behind which attacks of offense and defense are made. The Greeks of the Byzantine Empire, when Constantinople fell into the hands of the Turks, four centuries and a half ago, used a crude form of this device which was celebrated for centuries under the name of "Greek fire."

That form of turpinite which, exploding, is said to asphyxiate every living thing for a mile around; and the bombs filled with laughing-gas which are described as "causing their victims to laugh for fifteen minutes and then to burst into blinding tears,"—such are two samples of weapons devised in French laboratories.

The German laboratories appear to have been mobilized more rapidly than the French, and to have reached the field of battle first. Hence the world has heard more of the asphyxiating gases,—chlorine and other,—which the Germans are accused of having used with great effect since the early Spring of 1915. First, in the trench warfare on the Western front, where "three-foot cylinders, charged with chlorine gas," were emptied or blown upon the enemy, preparatory to a vigorous infantry attack with the bayonet, upon the helpless foe flopping in the trail of the poison gas. Again, on the Russian front,

particularly in the attack on the fortress of Ossowetz, where an assault was prepared for by the firing of 600 asphyxiating gas bombs, and these, not proving sufficient to poison the garrison, were followed by twice as many two days later, when the fort was taken.

The British, too, learned and practised the art of gas warfare, and on at least one battlefield,—that of Hulluch, —the white gas of the Britons mingled with the pink and green of the Germans. An eye-witness gives the following account of this most "scientific" of battles: "The whole line of battle was in a grayish mist, which obscured all landmarks, so that even the tower bridge was only faintly visible. But presently, when our artillery lifted, there were new clouds arising from the ground and spreading upward in a great, dense curtain of fleecy texture. They came from our smoke which was to mask our infantry attack, and beyond them rolled another wave of cloud of thinner, whiter vapor, which clung to the ground and then curled forward to the enemy's lines. 'That's our gas,' said a voice on one of the slag heaps, amidst the little group of observers, 'and the wind is dead right for it.' Then there was silence, and some of the observers held their breath as though the gas had caught their own throats and choked them. They tried to pierce that great bar of cloud to view the drama behind its curtain: the men caught in those fumes in terror-stricken flight before its advance and the sudden cry of the enemy trapped in their dug-outs.

"Later, from our place of observation, there was one brief glimpse of the human element in this scene of impersonal powers and of the secret forces across the stretch of flat ground beyond some of those zigzag lines of trenches. Little things were scurrying forward. They were not bunched together in groups, but scattered. Some seemed to hesitate and then fall and lie where they fell, while others hurried on until they disappeared in drifting clouds. It was all that one could see of our infantry at-

tack, led by bombers. The enemy was firing a tempest of shells. Some of them were curiously colored, of pinkish hue or with orange-shaped puffs of vivid green. They were poison shells, giving out noxious gases. All the chemistry of death was poured out on both sides. Below it and in it our men fought with fierce valor, and in these fields swept by shell fire from heavy guns reached the enemy's trenches and earthworks for 10,000 yards."

To combat this chemistry of death, various devices are borrowed from the chemistry and mechanics of life, such as protective helmets, which make their wearers look like members of the Ku Klux Klan, or official initiators into secret societies; and aluminum gas-masks, which give a highly grotesque, ape-like appearance to their human wearers.

A new weapon to fight against gas attacks is an apparatus for hurling fire-bombs into the advancing gas. This is described as follows: "The object of the apparatus is to cause large and rapidly spreading fires by means of specially designed incendiary bombs thrown in the path of the advancing gas at a distance of several hundred yards. By this means, since the heating of the air must cause an upward current, the gas, which at ordinary temperature is heavier than air and creeps with the wind along the ground, is caught in the upward current and driven out of harm's way."

"Back home," also, in the warring countries, and even in England, instruction has been given in schools and elsewhere as to the nature and manufacture of chlorine and other "military" gases, and the best methods of fighting them, whether "at the front" or in case of invasion.

After the so-called "Second Battle of Ypres," and after the German invasion of Poland, the Germans were bitterly denounced as having "lifted the lid," abrogated every rule of "civilized warfare," and made of themselves "barbaric, slaughtering beasts." It was then, too,

that the Polish-American Committee of Petrograd addressed to President Wilson the following appeal: "In the name of God and humanity, the Polish nation addresses to you, as President of the United States and a Christian, the prayer, that you will use your powerful influence to compel Germany at any cost to renounce the employment of asphyxiating gases. In a military respect the utility of these gases is more than doubtful; but if applied henceforth they will poison our citizens, make the water and the crops unfit for use and poison our wells and cattle. The effect after the war, we believe, will be to cause the population to die out slowly as a consequence of chlorine poisoning."

Such attacks as these brought forth vigorous articles in German newspapers which defended the use of gas as being "as humane as various other means of warfare." The enemies of Germany also, it is declared by the *Illustrierte Zeitung,* are utilizing gases, to the utmost extent of their ability; but, it continues, "the progress in German chemistry has enabled us to equip our troops with more effective means of defense than our enemies." It is argued, also, that since gases travel slowly, unless the wind is high, the enemy can escape it simply by evacuating the trenches or retreating; that "the practice of firing gas projectiles can be no more objectionable than floods artificially produced, as was done by our enemies in Flanders"; and that "continuous changes in the modes of warfare make constant innovations in the implements of war a necessity. The transformation undergone by the trench system influenced war technics. Whoever can conceive and realize the veritable purgatory of trench-fighting with its artillery fire, its hand grenades, its subterranean mines and the bombs from above, cannot consider a cloud of smoke, slowly approaching, more inhumane than any of the means enumerated."

This German magazine's plea that "there is no plausible reason why we should not make an ally of the atmos-

phere in forcing our enemies to vacate, when they resort to the other element [water] in battling with us," is reminiscent of Mark Twain's proposal to the German Emperor to make war forever impossible by the following means: "Your Majesty must send to my aid the most eminent men of science in your realm, who shall help me successfully to accomplish my purpose to extract from the atmosphere of our earth its oxygen; for then a general asphyxiation of its inhabitants will take place, and with universal asphyxiation we shall have universal peace."

Despite the vigorous defense of the use of gases, put forth by the German press, the outside world is almost a unit against this use, on both physical and moral grounds. One scientific statement regarding it is as follows: "The effect of this poison is not merely disabling, or even painlessly fatal, as suggested in the German press. Those of its victims who do not succumb on the field and who can be brought into hospital suffer acutely, and, in a large proportion of cases, die a painful and lingering death. Those who survive are in little better case, as the injury to their lungs appears to be of a permanent character, and reduces them to a condition which points to their being invalids for life."

The Belgian Government described and denounced its use as follows: "Clouds of this gas were projected and descended on the trenches occupied by the Allied troops. The gases formed a low-lying cloud of dark-greenish color, which turned yellow as it streamed upward to the height of about 100 yards. A minute and a half after the gases reached them the men in the trenches were seized with vomiting and spat blood, their eyes and the inside of the mouth grew sore, and they were then stricken by a sort of stupor lasting for hours."

The Bishop of Pretoria, an eye-witness of its results, writes concerning it: "I have just come in from visiting some of our men in a clearing-hospital at the front who have been 'gassed' by this latest and most damnable

invention of the German Imperial Staff, of which the Kaiser is the head. A more cruel and diabolical method of conducting war it would, I believe, be impossible to conceive. If the gas used merely knocked the men out for the time being, so that the Germans could walk over their unconscious bodies with impunity, it would be a sufficiently cowardly method of making war; but when as a fact, in a large percentage of cases, it kills men by a slow and torturing death, no language that I am master of can express what I am convinced every man, woman or child would feel who saw what I have seen of the obvious agonies of great, fine, healthy men and lads under the ghastly effects of this poisonous gas. There in that one clearing-hospital were scores of men (and they only a small percentage of the total number who had been 'gassed') suffering in varying degrees from suffocation—the worst cases fighting desperately for every breath in ghastly pain, and many of them had been going through this torture for days."

Such are a few echoes of the storm of protest that has greeted the use of poisonous gases. But the fact remains that this use is now resorted to by all the belligerents in the great war, that it is scientific, efficient and "adequate." Shall we, then, mobilize our chemical laboratories and prepare for the war ahead of us by providing as efficiently as possible this kind of "adequate defense"?

Our Ammunition Preparedness

Before we order the entrées and dessert, our preparedness reply, we had better look after the bread and butter, and *pièce de résistance* of our preparedness. Let the gases, liquids and explosives wait until we have laid in a sufficient supply of powder and shot.

How are we off on this initial item of ammunition? We must apparently be in a very bad way indeed. General Wood testified last Winter before the House Committee on Military Affairs that, "at the Battle of Muk-

den, the Russians expended in nine days more than 250,000 rounds of ammunition. The entire yearly capacity of the United States," he continued, "is just that amount." Mukden, however, was ten years ago; to-day, a single battery of French artillery is consuming in one day as many shells as the United States' arsenals manufacture in a half-day; their 75-millimeter rifles fire as many as twenty-five shots a minute. A record of 500 shots per gun per day is said to be quite ordinary.

Few though our guns are, if they were all put in action, it is declared, there would not be enough ammunition in our entire country for an engagement lasting *one single day*. Is there any wonder that our prepareders, contemplating battles in the Old World lasting *weeks* and campaigns lasting months, should tremble in their boots at thought of our unpreparedness in ammunition alone? We have not enough ammunition, declares Congressman Gardner, to last our coast defense guns *three-quarters of an hour;* and, he adds, "at the present rate of appropriations, it will take eighteen years before we have ammunition for our coast defense sufficient to last one hour!" Mr. Hudson Maxim declares that we could fight only about two hours with the supply of ammunition we have on hand,—about enough, perhaps, for practice.

What is "adequate" preparedness along this line? The new plan for Congressional action is to provide for an increase of nearly 500 per cent. in the amount of ammunition per gun, this to be manufactured and stored ready for use. This is far too modest a demand.

But if, for purposes of an "adequate" supply, we should increase our stock by 2,500 or 3,000 per cent., how can our manufacturers meet such a demand? General Wood testified, as has been stated above, that the entire yearly capacity of the United States is just 250,000 rounds of ammunition,—the amount expended by the Russians a decade ago in a nine days' battle. The stimulus of the

great war on the American manufacture of munitions has been responded to in most extraordinary fashion[1]; and this stimulus has been felt and responded to in almost equal degree by the Government's arsenals. For example, their capacity for turning out small arms ammunition at the beginning of this war was about 10,000,000 rounds a week; this capacity, however, was cut in half by the impossibility of getting powder enough to load the shells. To-day, it is said to be possible to turn out 30,000,000 rounds a week.

With this increase in productive capability, it might seem that the fears of the prepareders would be calmed. But they have discovered that it has taken a whole year thus to transform American industries for the making of munitions, and that so far less than one per cent. of the ammunition used by the Allies has come from these industries. They point out, also, that 90 per cent. of the ammunition manufactured in the United States, together with all our coal mines, the Springfield Armory Works, the Picatung Arsenal, where nearly all our high explosives are made, our ship-building plants, and other centers of "preparedness," are located within a radius of 160 miles of Peekskill, New York; and they have discovered, also, that "some foreign power could seize all of these within three days, and would put us at work running these plants for their benefit." With these establishments captured, the "second army of defense," to be mobilized in the Middle West, could not be supplied, and the whole country would be captured. Hence, this section of the United States with Peekskill as its center, is so vitally important that it constitutes "Uncle Sam's Solar Plexus," and should be defended in the good old-fashioned way in which solar plexuses have always been defended.

From another point of view, of course, the munitions industries in this organ of the Republic's body, may well

[1] See pages 47-59.

be considered "Uncle Sam's Cancer," and the proper mode of dealing with it to be to "cut it out," instead of defending it. "Adequate defense" by and of it, however, is the present question at issue; and it may be conceded as a *possibility* that if all this section's population, wealth, natural resources, and industrial capability were concentrated upon the achievement of "adequate defense," even though against a first-rate power or alliance of first-rate powers, in Twentieth Century warfare, the effort might be successful. But still the pressing question would arise: Would a people's life and territory so dedicated be really worth defending? The Federal Government has begun to put its 2,000 *convicts* in the Atlanta and Fort Leavenworth penitentiaries to work on the manufacture of munitions of war; this would appear to be somewhat more in accordance with the eternal fitness of things,—though hard on the convicts.

Projectiles

Under this name may be briefly considered some of the various types of missiles which are discharged from a gun or cannon, or hurled by hand or some other force.

Bombs

Among these, the *bomb* has terrified the world on the occasion of various anarchistic outbreaks, and has been somewhat elaborately developed for military uses. In the present war, there are numerous kinds of bombs in use, among them the "hair-brush," the "cricket-ball," the "policeman's-club," and the "jam-tin." These have been described as follows: "The hair-brush is very like the ordinary hair-brush, except that the bristles are replaced by a solid block of high explosives. The policeman's truncheon has gay streamers of tape tied to its tail to insure that it falls to the ground nose downward. Both these bombs explode on impact, and it is not advisable to knock them against anything,—say the back of the

trench,—when throwing them. The cricket-ball works by a time fuse. The removal of a certain pin releases a spring which lights an internal fuse, timed to explode the bomb in five seconds. You take the bomb in your right hand, and remove the pin and cast the thing madly from you. The jam-tin variety appeals more particularly to the sportsman, as the element of chance enters largely into its successful use. It is timed to explode about ten seconds after the lighting of the fuse. It is, therefore, unwise to throw it too soon, as there would be ample time for your opponent to pick it up and throw it back. On the other hand it is unwise to hold on too long, as the fuse is uncertain in its action and is given to short cuts."

In spite of the element of "sport" in the throwing of the last two kinds of bombs, their throwers are familiarly known in the trenches as "anarchists." The first two varieties of bombs are the modern variant of the Seventeenth Century hand-grenades, and have restored to their throwers the name of "grenadiers." But, unlike the anarchist in time of peace and the military grenadiers of the olden time, our modern bomb-throwers in the trenches are obliged to wear, besides steel helmets and bullet-proof waistcoats, masks for the purpose of nullifying the effects of poisonous gases.

The return to hand-throwing was due to trench-fighting at close quarters, in which guns of long range were useless. This trench-fighting, however, has stimulated the German gunmakers to devise and construct guns of shorter range than were ever known before. Hence, at the same time that they are striving to make guns with a range of thirty miles, they are developing guns designed to toss missiles containing high explosives "about as far as a foot-ball player can kick a goal."

The "Minnenwerfer" and the "Rumjars" are the best known of these. The former were the first in the field, but have already been surpassed by the Rumjars a hundred-fold in accuracy and deadly result. These dis-

charge missiles which strongly resemble the one-gallon stone jars in which the British army's rations of rum are carried; hence their name. They are of two-gallon capacity, and are charged with tri-nitro-toluol, which is exploded either by a time or delayed percussion fuse. The explosion seems to be more instantaneous than that of any other projectile, and there is therefore a concentrated fury in the noise of its bursting that distinguishes it from all other projectiles.

Another variety of missile is known as the "Sausage," which is fired probably from compressed-air guns, since the discharge is almost inaudible. The "Percy," like the "Rumjar," explodes with an extraordinary *crack*, and the "Pip-squeaks" are similar, but smaller; while the "Whizz-bang" is still another bomb exploded by a time-fuse, but thrown by hand.

"Incendiary fire-bombs" are another product of the military laboratory, the component elements of which produce sufficient heat to kindle a flame in anything that will burn. Phosphorus is thought to be one of these elements, and any one struck by a fragment of these bombs is badly burnt as well as wounded, the burns often proving fatal even when only a limb is struck. A Russian commission appointed to examine these missiles, has reported the presence of prussic acid in them, which poisons as well as burns.

Shrapnel Shells

The name of a young English officer of artillery, Colonel Shrapnel, who lived and died a century ago, has been made by the present war a household word. The shrapnel shell which he invented has been developed and has become the main reliance of artillery, which has been the main reliance in the war. Its inventor observed the comparative ineffectiveness of solid shot, which killed or damaged one man only, and of the ordinary shell, which simply burst into a few unaimed fragments. He accord-

ingly filled the shells with *bullets* and added a charge of powder sufficient to burst the shells. Later, it was found that, unless the burst was exactly timed, the effect even of this missile was slight. Accordingly, it is now accurately regulated so that it occurs a trifle above and fifty to sixty yards in front of, the enemy's lines. Under these circumstances, it hurls a blast of bullets with deadly effect. This effect has been described as follows: "Shrapnel does not burst into fragments like common explosive shell; it has merely a sufficient charge of powder to blow its own head off and at the same time throw out the bullets contained in the shell casing. These have, naturally, the velocity of the projectile itself, together with the slight additional force of the bursting charge. These bullets scatter in a cone-shaped spray like a charge of shot from a shotgun. Properly bursting under all ideal conditions, one three-inch in diameter shrapnel from a field gun can disorganize a company of infantry, and two or three, also bursting perfectly, simply annihilate it."

All kinds of guns are used for the discharge of shrapnel, and especially the howitzer, which throws a very heavy projectile a short distance. Dropped upon troops in such high-angle, howitzer fire, shrapnel is said to burst upon them "like a shower-bath of leaden death."

A 12-inch shell, weighing about 870 pounds, carries a charge of thirty pounds of high explosive; the casing is thin and light; the rest is bullets. Three-inch shells, manufactured in the United States for use in Russia, contain 260 bullets each, and they can be made to explode either by impact or at any given point in their flight from one to twenty-two seconds.

Thus it is seen that such projectiles are very ingenious pieces of mechanism,—each sometimes including as many as thirty pieces of mechanism, and each as accurate as a watch. The largest of them,—those used in the "Chubby Berthas,"—cost $4,000 each, and each shot causes $1,000

damage to the lining of the guns. The smaller shells run from $500 down to $10 each.

Expensive though shells are, their "deadliness" demands their use on an enormous scale. The French artillery is consuming a daily average of 7,000 tons. Within ninety minutes, in an engagement near St. Mihiel, German guns poured 20,000 shells of 4- to 8-inch caliber into one small corner of the French intrenchments; it is small wonder that many of the soldiers were reported to have been "driven crazy by the terrific hail of shells." Within the first few weeks of the war, the German armies alone had shot off as many shells as had been fired before in all of human history. Their daily average in France and Belgium was 120,000; and the French responded with 80,000 shells each day, while the British general demanded of his government 100,000 more per day.

"Shells, more shells, still more shells," has been the incessant demand from the battle-fronts ever since the early days of the war. It was speedily recognized that the war was primarily, not the soldier's, but the manufacturer's job. Hence the mobilization and government control of the munitions plants. So successfully was this accomplished in France, it is reported, that the government has ceased to manufacture shells for their 75-millimeter guns, as they now have enough on hand to fire 100,000 rounds every day for a year. Mr. Lloyd-George has recently declared that the Teutons' shell-making capacity is 250,000 daily. The British capacity is still far below this, in spite of a great popular outcry against the government's dilatoriness; and no stone is being left unturned,—even the chemical ability of women students, the suppression of strikes and intemperance among the laborers, and the curbing of the employers' greed,—to supply this deficiency in the sinews of war.

How Many Bombs and Shells Have We?

Our government and manufacturers have not practised on a large scale, until the present war, the art of making bombs and shells. We have improved somewhat in this respect within the year. For instance, the New York Air Brake Co. is filling a foreign order for $30,000,000 worth of shells. Another American firm has a contract for 6,000,000 shells,—7,500 per diem.

Such are examples of a truly enormous industry. But great as it is, it is wholly insufficient for the needs of a great war. Less than 1 per cent. of the Allies' ammunition has come as yet from America; and our munitions factories cannot compare in productivity with those of Europe,—especially of Germany. We have still a very long road to travel before we can compete in quantity, if not in kind, with the projectile-making ability of our "possible" enemies.

Shall we "prepare" by multiplying our output many fold, and by "going in" for all the latest death-dealing missiles? The expense will be considerable. The comparatively simple shots from a 13-inch gun each cost us $1,605! How many of these shall we provide? Shall they be solid shot, or shrapnel, or high explosive, Benzol, shells? The prepareders want us to take no chances and provide "adequate" quantities of all three, and of every new kind as it is successively invented.

Will our moral standard, as well as our pocket-book, stand for this? An automatic machinery company in our Middle West, which advertised the sale of machinery for making "poisonous acid shells which make those struck to die in agony," brought down upon itself a stern public rebuke from the Secretary of Commerce, who wrote to it as follows: "It is, I confess, difficult for me to understand how any one who was not callous in a high degree could have drafted such a statement for publication with a view to selling his own wares. If, as has been sug-

gested, your thought was to horrify people with the war, no suggestion of such a purpose appears in the advertisement itself. On the contrary, you urge the cruel and agonizing nature of the death caused by certain missiles as an evidence of their effectiveness, and suggest this as the basis of a sale for the machines which make these hideous things. At a time when every instinct of patriotism calls for calm and self-restraint, when sobriety of statement is almost a supreme duty, you, as you admit, to gain notice to an advertisement, draw a picture of human misery as a means of earning a profit through the sales of machines to produce it."

This sounds like the humanity which we love to associate with America; but if we are thus to permit "moral squeamishness" to stand in the way of making "efficient" weapons, what is to become of "adequate preparedness"? And if we prepare "adequately," what is to become of our moral standards,—especially when we get what we prepare for?

G. FORTIFICATIONS

From the day that a Stone Age man hurled the first projectile at his human foe, the science and art of fortification have endeavored to keep pace with the science and art of projectiles and explosives. Every land, our own included, is strewn with the ruins of "impregnable" fortresses, which some new "irresistible" projectile has made useless and deserted.

Inland Forts

Our own problem of inland fortification has been a relatively simple one, since we have never had to cope with a real foe, "worthy of our mettle," in this favored hemisphere. But from the days of the Colonial blockhouse to the present, we have built many forts to resist or subdue the Indians. For more than a century, our Federal government has been establishing scores of army

posts upon "the frontier," and with the progress of the frontier westward, our "forts" and army posts have followed the retreating Indian, until about 150 of them were built across the continent from New York to San Francisco. The Secretary of War has declared that forty-one of these are absolutely useless, so far as our Indian or any other "enemy" is concerned.

The value of these posts to the communities among which they are located is so great,—in the way of supplying a local market, "putting money into circulation," etc.,—that it has been found impossible to abolish them. For example, the Secretary of War has shown that $6,000,000 has been spent during a decade on two absolutely useless posts in Wyoming, and that more than $5,000,000 per annum could be readily saved by abolishing them and some others equally useless; but the political power of the congressional "pork barrel" is such that this measure of simple economy has thus far been successfully opposed. It has been shown, also, that the long distances at which these posts are separated from each other make speedy concentration of the regular army very difficult; and since only six of them can accommodate more than one regiment, and only one a brigade, the much desired team-work on the part of the army and its subdivisions is made impossible.

But so far from abolishing such posts, a movement is now on foot,—promoted by the preparedness campaign,—to establish large sections of the army in fortified posts at the "strategic centers" of the country. These are not designed, of course, as preparedness against the Indians, but as preparedness against any foreign foe who may attempt to land upon our coasts and conquer our land. The mountain-crests and passes of the Alleghanies, the Rockies and the Sierra Nevadas; the valleys of the rivers which flow into the Atlantic, the Gulf and the Pacific; the lakes and forests and plains of our great continental domain, open up fascinating vistas of

opportunity to the military strategist; and he assures us that "impregnable" forts like those of Verdun and Helgoland are absolutely needed to prepare us against invasion and conquest by our Japanese, German or British foes. What could these foes not do to us, swarming across the Pacific, the Sierras and the Rockies, into the Great Plains; or across the Atlantic and the Alleghanies into the fertile valley of the Ohio and the teeming lands of the Central West; or across the Great Lakes and down the Mississippi into "the heart of the Continent"?

We have already expended within the last few years $13,000,000 in defending Pearl Harbor, Hawaii, and among its defenses we have utilized an extinct volcano, known as Diamond Head, by fortifying it and equipping it with four mortars which have a range of from six to nine miles. How many and wonderful are the natural opportunities for effective fortifications and efficient bases of operation in almost every nook and corner of our continental as well as island possessions!

Why should we *not* prepare, and prepare "adequately," along *this* line of infinite possibilities?

Moving Forts

But nothing that is stationary is worth much in these stirring times. Forts should not wait to be attacked; like warships upon the sea, they should be foot-loose and seek out the enemy wherever he is to be found, and then hammer him until he stops fighting.

That is what is being done in this greatest of wars in Europe. Railroads are no longer merely means of transporting men and supplies; they are now the means of conveying forts. These forts are trains of heavily armored cars, loop-holed for rifles, machine-guns and rapid-fire guns of large caliber mounted on pivots or on revolving turrets. They serve admirably as posts for sharpshooters, who can fire from them in such shelters as railroad cuts; or can dash out in support of a retreat-

ing column of soldiers and turn defeat into victory, as was done repeatedly near Nieupoort, Belgium. They can even elude the fire of big guns, by moving rapidly to and fro upon the tracks; for these "land-going ironclads" have more than the speed and much of the effectiveness of battle cruisers. They are still in their infancy, and great possibilities lie before them.

What could America not do along *this* line of preparedness, with the greatest railway system in the world? Fancy how we could build and equip our freight and passenger cars, and our trolley-cars as well, so that they could be recruited in time of need as moving fortresses throughout the length and breadth of country, town and city!

Unfortunately, such moving forts as these can travel only on the rails. But they have been supplemented by forts which can travel on every highway or country road. The armored automobile has sprung full-fledged into existence during the present war, and is being used with great military effectiveness. Manufactured or bought by thousands, and equipped with armor plate for the protection of their vitals, and with machine-guns for an attack on the vitals of the enemy, they have been sent forth on their death-dealing mission singly or in troops. Working independently, like the panoplied knight-errant of old; or coöperating in flocks, or shoals, like troops of giant cavalrymen, or like chains of moving forts, they have engaged in many kinds of attack and defense, and have rivalled the exploits of Richard of the Lion's Heart.

America, with its marvellous facilities for leading the world in armored automobiles, and with its continental stretches of roadway, will surely not be left behind on *this* item of the preparedness programme! Already, we have listened to the appeal, or responded to the challenge; for the Army Bill in the last Congress carried an appropriation of $50,000 for one armored motor car.

This is, of course, only a beginning, though a somewhat expensive one. But patience, patience; with proper manipulation of popular fear and congressional log-rolling, we can yet fill our land, or roads, with armored, and therefore truly useful, automobiles. What clouds of jitneys, touring and *de luxe* autos would our manufacturers not build for Uncle Sam's safety? Nay, more, why should not every private individual who owns an automobile be required to provide it with armor and a machine-gun so as to be able to respond at once, like the minute-men of Concord and Lexington, to the call to arms? Away with the foolish and unpatriotic objection that automobiles, unarmored, are already sufficiently deadly to our own population! If we are going to prepare for *war,* and to prepare *adequately,* let us get down to business!

Coast Fortifications

But why talk about the inland fortifications of our country? They would be needed only in case our enemy should land upon our shores; and this he must not be permitted to do. Our navy, as the first line of defense, must surely stop him; and if that fails to do so, our coast fortifications must beat him off.

Our Deficiencies in Forts

Our "coast" fortifications, however, do not really defend our coasts; the utmost they can do is to defend some of our harbors,—the harbors of our principal seaports. The strips of coast which they "protect" are not more than fifteen to twenty miles in length,—about 200 miles in all, a military expert testified last winter before a congressional committee. Before that same committee, an admiral declared that he saw no reason why a foreign foe could not land on any foot of our American sea-coast. *Two hundred* miles protected,—after a fashion; *three thousand* miles along the Atlantic,

and some *five thousand* miles on the Gulf and the Pacific, to say nothing of *four thousand* miles of frontier on the British-Canadian border, still to be protected! The outlook is sufficiently gloomy.

Our prepareders have grappled with the problem. After the hundreds upon hundreds of millions invested during past years in forts, obsolete or obsolescent, our congress was induced last year to appropriate $6,000,000 for coast fortifications. This is a mere drop in the bucket. One fort now building at Los Angeles is to cost more than $3,000,000. The new plan provides for building another fort at the mouth of the Chesapeake Bay to protect the passage between Capes Henry and Charles,—which leads up to Baltimore and Washington; and for the appropriation of $20,000,000 a year for four years, to go as far as it can towards protecting the rest of the coast. One-fourth of the $80,000,000, however, is to go towards defending our unprotected island possessions and naval bases in some such way as we have protected Pearl Harbor, Hawaii. This last cost $13,000,000; how far would $20,000,000 go in defending the rest of our island family and Alaska? Four years are a long, long time, if the Germans or the Japanese are to land upon our shores to-morrow.

How much can we do, in four years and with $60,000,000, for the continental United States? How much did the "impregnable" fortresses of Liège, Namur or Antwerp cost? Though we should get *really* impregnable fortresses for protecting another small fraction of our enormous coast-line, our experts insist that there is nothing to hinder a strong enemy from landing elsewhere on our coast and capturing our big cities by marching inland to their rear.

Our Deficiencies in Personnel

Even the number of coast fortifications at present in our possession are woefully under-manned. The Regu-

lar Coast Artillery Corps is short 612 officers and 10,988 enlisted men. The new plan provides for the enlistment of 10,000 more. But the Regulars man only one-half the guns, and depend on the Coast Artillery Militia to do the rest. The shortage in the Coast Artillery Militia is 299 officers and 11,409 enlisted men. The seacoast States have been urged by many and varied inducements to make up this deficiency; but despite this effort, the deficiency was greater last year than it was the year before.

This shortage is based, moreover, only on peace conditions; in time of war, not less than two complete manning bodies would be required, and the shortage would be far greater. *Three* bodies, working eight hours each, is the experts' desired minimum. How are these men to be secured, and, more especially, how are they to be properly trained for their difficult, highly professional duties?

Again, to protect coast fortifications against sudden land raids, Coast Artillery Supports are necessary. These are ordinarily drawn from the "mobile army"; but our mobile army is itself wofully deficient. Again, our fortifications outside of the United States must be manned entirely, and not only one-half, by the Coast Artillery Regulars; the insular fortifications now ready for garrisons will still further deplete our home Regulars and leave them about equal to one-third of one relief. It would appear, then, that for "adequate" preparedness along this line, we should increase the personnel of our coast defenses by at least 40,000 men,—this with our present fortifications. When we get an "adequate" number of fortifications, no man can say how many thousands or hundreds of thousands of coast defense men we shall require.

Island Fortifications and Naval Bases

But why wait for the enemy to attack our coast fortifications at home? Let us prepare to waylay him in

the Pacific or Atlantic on his way across the ocean. And let us not keep our fleet only in its home-ports, but send it out in great, crushing divisions to our naval bases, so that it can reach the enemy fleet in cruises of not more than 2,000 miles in radius.

In the Pacific, we have four points from which, at 2,000-mile cruises, we can "command the ocean." These are at Pearl Harbor, Hawaii; Unalaska, Alaska; Samoa; and Guam. By the expenditure of $13,000,000 we have built up a fairly respectable base at the first of these. Let us do the same at the other three points, and we may feel reasonably prepared,—except in so far as trained men, big enough guns and plenty of ammunition are concerned. Let us remember, however, that unless we supply these deficiencies at Pearl Harbor and prevent their occurrence at the other bases, the Japanese might seize and utilize for themselves these "impregnable" fortresses, even as the Fortress of Malta was manned by just enough men to open its gates to the enemy.

In the Atlantic, we have made a beginning with Guantanamo and the Panama Zone, and can experiment with Porto Rico and,—if we can get them from Denmark,—with St. Thomas and St. John; but we are obviously in dire need of more naval bases in the Southern, Northern and Eastern Atlantic, and in the Southwestern Pacific, if we are to be "adequately" prepared for the defense of our own country, our island possessions, and the Monroe Doctrine against a "victorious" Great Britain or Germany.

The Problem of Big Guns

Twenty-nine years ago, some experiments were made at Fort Malmaison, in France, which proved that the best "impregnable" fortifications erected up to that time were obsolete. Their walls and works were destroyed with "laughable ease" by 8-inch shells charged with the new high explosive known as "melinite." The question

then arose: On which shall we bet our money,—on "impregnable" forts or on "irresistible" projectiles?

The French and Belgians went in for the forts, the Germans for the projectiles. The best engineers of France and Belgium built those forts which were regarded as an eighth wonder of the world,—at Belfort, Toul and Verdun, Liège, Antwerp and Namur. The best that concrete walls from six to ten feet thick, and armor plate of similar or greater thickness, could provide, was lavishly provided, and France and Belgium confidently awaited the issue.

Meanwhile, the Germans developed their guns from 8-inch to 16½-inch and their howitzers to 17⅝-inch, and they learned how to move them and to move them fast; they developed their shells, also, to weights of more than a ton, and filled them with new and improved high explosives. The test came in 1914 at Liège and Namur, and the projectile was shown to have won the race,—and the battle. As in 1886, the forts were utterly demolished, their armor plate and concrete walls were cracked into fragments, their massive embankments were pulverized. At Liège, while the guns were getting warmed and limbered up, the forts lasted two days, at Namur they lasted five hours!

In another great fortress, at Maubeuge, in France, a garrison of 3,000 soldiers essayed to defend it; the Germans hurled a few shells from a 42-centimeter gun upon it, and 200 Frenchmen more dead than alive survived to creep out of the hole which was all that was left of the fort.

With the example of Belgium and Maubeuge before them, the French determined to pin their faith, not to their "impregnable" forts, but to intrenchments and other things, especially big guns.

How "impregnable," then, must our forts be to withstand the "Chubby Berthas" and other big guns, feminine and masculine, that might be trained against them?

The eight 15-inch guns of the British battle cruiser, *Queen Elizabeth,* for example, are reported by one of our military experts and ardent prepareders to be able to begin at the Battery and wipe out New York City up to Fourteenth street, while the cruiser lies at Rockaway Beach entirely out of range of the guns in New York's forts; or, this cruiser and any of the German first-line ships, "could lie off Nahant and, without coming under the fire of a single gun from shore, could destroy the navy-yard at Charlestown and as much of Boston as surrounds it."

Most of our coast defense guns are 12-inch, which have an effective range of 13,000 yards, as against an effective range of 21,000 yards possessed by our opponents; hence, another expert declares, "the most modern ships could *anchor* several thousand yards [or more than four miles] outside the range of our coast-defense guns and proceed to silence our batteries, unmolested and with great deliberation."

We have a few 14-inch guns in our insular possessions, and one 16-inch gun for the protection of the Panama Canal. The new plan is to provide us with two more 16-inch guns; and to remount the 12-inch guns so that their maximum elevation can be increased from 10° to 15°, and thus increase their range from 13,000 to 20,000 yards. This will cost a very large sum of money, and will necessitate the use of a lighter shell than that now carried, which is only 700 pounds. Can such projectiles, fired three miles up in the air so as to enable them to carry 20,000 yards, be considered "adequate" defense against projectiles weighing more than a ton with an extreme range of 24,000 yards and an effective one of 21,000?

A half-year after the war began, the Secretary of War asked for an appropriation, for strengthening our coast defenses, of $40,000,000; but during that half-year, the superiority of the modern gun to the modern fort was established, and the experts sent forth their verdict as

follows: "The day of concrete and iron has passed away. Closed works must be replaced by open earthwork redoubts massively built, connected together with overhead cover, and so devised as to admit of rapid improvised extension to meet the ever-changing conditions of attack."

That is to say, the fort-makers are going to do their best to "come back" and continue their world-old contest with the gun-makers. Meanwhile, the greatest war in history is going on and with it the application of ever new discoveries in chemical science and mechanic arts. Meanwhile, also, the development of air-craft and high explosives may make the most "irresistible" gun and the most "impregnable" fortress as antiquated in warfare as are now the sling-shot and the tree-trunk. It may soon be almost as far to look back through a series of new devices to the steel-and-concrete fort and the 16-inch gun, as it is now to look through anchored and floating mines, automobile and wireless torpedoes, aëroplane scouts and defenses of the inner harbor and passage-way, back to the once "impregnable" booms, or chains of logs and iron.

H. UNDERGROUND PREPAREDNESS

Submarine warfare in our time is matched by subterrain. The prime requisite of the soldier in the present war, as in the days of Julius Cæsar, is to *dig,* and the second is to *hide.* It has remained for war, not peace, to beat swords into spades and spears into pick-axes. Nations, precipitating the war to secure a place "in the sun," have sent their soldiers into the trenches and made of them moles and ground-hogs, burrowing and living underground. "*Burrow* on to Berlin or to Paris," is the slogan in this war of spades and picks.

Intrenchments

The old-time rifle-pits, or trenches three feet deep, with the earth thrown up in front of them to protect riflemen or skirmishers, have been utterly eclipsed by the trenches of today, which are the apotheosis of the trenches of our own Civil War and of the Russo-Japanese War of a decade ago. "Intrenching," "digging yourself in," is one of the primary arts of war, not only in siege operations, but in the field as well. Not "throwing up," but "digging down" and "digging in," are the watchwords of our time. Indeed, a battlefield today is declared by an eye-witness to be "distinguishable from any other stretch of ground by there being no soldiers visible on it. Movements of troops near the front have to be made mostly at night, and in the day-time the scene of conflict looks like the interior of the crater of Mauna Loa,—a torn and barren plain with here and there a volcanic eruption."

In the olden times, a city was besieged; now, a country is besieged. Hence, intrenchment is undertaken on a large and complicated scale. The line of intrenchments in France and Flanders, extending from the mountains of Switzerland to the North Sea, measures 420 miles in length, not counting its minor twists and turns and parallels. The Russo-German line is at least 500 miles in length. This line is not a single, but a double, and in most places a triple, line of trenches, one behind the other, so that if the first be taken, the others may be fallen back upon. Multiplying these 920 miles by two, for the two opposing lines, we have 1,840 miles; and multiplying these by three, for the three lines of trenches, we have 5,520 miles. Adding to these, 800 miles which the Germans have dug in Eastern Belgium and along the Rhine, 400 dug in Eastern England and along the Suez Canal against a possible invasion, 100 dug by the Austrians and Italians along the Isonzo, and 200 dug in

Southern Bulgaria and various other parts of the battle-stage, we have approximately 7,000 miles of trenches. To these must be added, also, about two miles of communication trenches, through which forces are brought forward in safety to the firing trenches, for every mile of trenches on the front; thus we have a total of some 8,800 miles.

A single trench this long would reach from San Francisco to New York, across the Atlantic to London, to Paris, to Berlin and on to Petrograd. If the war continues a few months longer, man will have *dug* himself around the globe. In the light of these sub-lunar achievements, it is suggested that the "canals" on Mars are really intrenchments in which the Martians have dug themselves in.

Since the average trench is six feet deep and five feet wide at the top, it is estimated that, with dugouts and traverses, two cubic yards of earth have been removed for every yard of trench. The German share of this digging is estimated to be equivalent to the Great Wall of China, the Germans having dug for fourteen months, and the Chinese built for ten years. If all the armies dig as well in the next six years as they have dug in the last one, they will have dug an equivalent of the Panama Canal, in half the time required for that greatest of engineering tasks.

Underground Quarters

The firing trenches, which are in some places as many as eighteen feet deep, but very narrow, are connected with each other by means of underground tunnels, which are made much wider for the movement of troops and supplies, and for the "quarters" of the men at the front. These "quarters" have taken the place of the romantic bivouac of olden times, with its rows of little tents, outposts and sentry-guards. They are commodious caverns, fortified in many places on roof and walls with

metal and concrete, and containing at least some of the comforts of the barracks, but lacking the greatest of all, namely, sunlight and fresh air. In those most up-to-date are to be found kitchens, dining-rooms, stables, cow-sheds; one boasts a bathroom; another, a phonograph, which since the quarters are connected by telephones, may be heard all down the line. Since aëroplane scouts abound, these quarters are concealed as carefully as possible by means of earth and dead or growing crops. Their occupants do not see the light of the sun for days at a time. Some of then are drained; but rainy weather brings to most of them indescribable misery and hardships.

Mines and Counter-Mines

This extraordinary development of trench-warfare has not crowded out the old-fashioned mining and counter-mining, but, on the contrary has given a great impulse to it. Deep narrow ditches, known as " saps " are dug at an angle from the trenches towards the enemy's works. These saps are completely underground, of course, until at the sap-head,—advanced at times to within four yards of the enemy's trenches,—the grenadiers burst through the crust of earth and hurl their grenades or bombs at their opponents. The ground is fairly honey-combed with zig-zags and parallels, advanced by both sides, and the mines and counter-mines form a veritable labyrinth in which the sappers and miners often lose their way and their lives.

The development of high explosives has given to mines and counter-mines an enormous increase of efficiency in the blowing up of forts, intrenchments and quarters. The " Western Zone of War," about ten miles in width and extending from the Channel to the German frontier near Basle, with its hundreds of houses, barns and villages destroyed and the very landscape itself scarred and

seamed, bears eloquent testimony to the volcanic action of these mining operations.

Our Underground Preparedness

What are *our* present facilities for engaging successfully in the enormous activities of the underground warfare of our time? How many and what facilities must we have to be "adequately" prepared on *this* item of the military programme?

Well, we are told by our military experts that if our *entire* field force in the regular army were ordered into the trenches, they could man a single line about *fourteen miles* long; then, if we sent our entire militia in after them, we could extend this single line to *sixty-five miles*. New York City alone has a circumference of about one hundred miles; and there are a good many cities and towns in these United States outside of New York City. The rule of our Civil War, a half-century ago, prescribed 5,000 men for every mile; with our 150,000 men we might live up to this rule for *thirty miles*. To intrench for 420 miles, the length of the intrenchments on the French and Belgian frontier,—we should require 2,100,000 men, and this is according to the rule of a half-century ago.

The training of this vast host for effective "digging in," and for effective fighting from and in the trenches and mines would be no holiday pastime. Trench warfare in our day, with its use of trench guns and mortars, its grenades and bombs, its endurance of unparalleled hardships and miseries, can scarcely be prepared for by the antiquated manual of arms and "maneuvring" which our coddled militiamen and volunteers regard as the sum and substance of a "military training."

Men, however, are only one of many items in the programme of intrenchment. Steam-shovels, concrete, steel, catacomb dwellings,—what an endless vista of "preparedness" opens up on this line! What a magnificent

series of intrenchments might we not prepare for along the Great Lakes and our countless rivers,—even as the bloody Mazurian Lakes between Russia and Germany, and the Aisne, the Marne and the Yser Rivers in France and Belgium have afforded splendid opportunities for "water trenches"! Even little Holland has equipped itself with a system of trenches which, if captured by the enemy, can be converted into deep-flooded ditches,—a hindrance rather than an aid to the advancing foe. Surely mighty America should do as much. And surely, with our matchless field for intrenchment around half a thousand cities, and across our continental domain, over valley and plain and mountain, our prepareders upon the land are as fortunate as are our prepareders upon the sea and in the air, with their unequalled opportunity of two mighty oceans washing our shores and a heaven of atmosphere above us!

I. SOCIAL AND INDIVIDUAL PREPAREDNESS

The warfare of our time absorbs the energies of entire nations. The fighting and fighters "at the front," although more spectacular than those "back home," are only of temporary importance,—like the trigger that fires the gun. The nation itself must supply the gun and the ammunition and replace the broken trigger. Hence, "military efficiency" as Germany has taught it to the world, and as we must learn it if we are to prepare for successful war, means the creation, organization and mobilization of the entire people.

This "fundamental preparedness" is, of course, a gigantic task and has innumerable factors. Its scope can only be indicated here, and only a few of its factors referred to.

Physical Preparedness

There is no possible reason or excuse for "race suicide" among a people bent on "adequate" prepared-

ness. The fathers and mothers of the race should not only "raise their boys to be soldiers," but should raise plenty of them. Nor are boys only needed as "food for powder"; the girls, too, can play a most worthy part in war, for example, as "war brides," as industrial workers, even in Amazonian regiments if necessity demand.

Even Germany, with her relatively large population, is in peril of being beaten in the present war by the mere force of physical attrition. Enough boys do not reach the "fighting age" of fifteen or fourteen years to fill the gaps in the ranks of their elders. The United States, with a territory seventeen times larger than that of the German Empire and a population only one-third larger, should increase its birth-rate and immigration many fold to be as relatively prepared as is Germany. Texas alone could accommodate one-fourth more people than Germany does, and Alaska nearly three times as many! How thrilling to think of the 1,200,000,000 people whom we could accommodate in the United States,—in adequate preparedness for the war that confronts us!

These teeming millions must be thoroughly well developed in stature, muscle and sinew, for we must send no mollycoddles to the front when the great test comes. Hence the pressing need of gymnastic and athletic training. Turn-vereins must spring up, as thick as hops, to vie with our colleges and Y.M.C.A.'s in turning out tall and muscular men and women.

Medicine, hygiene and sanitation, above all, the most scientific of marriage laws, must be developed and drastically applied, so that weaklings shall be reduced to a minimum and stronglings shall increase and multiply. A wise charity, preferably administered by the State, must prevent wasteful weakness and death from snatching from the State the able soldiers whom it may so sorely need.

Moral Preparedness

Believing that there never have been and never can be genuine moral equivalents for war and military training, the State to be adequately prepared must cultivate in its citizens the virtues of the fine old military profession,—the profession that doth most befit true men.

Implicit obedience and the willingness to "stay put"; brute courage that knows no fear; callousness to human suffering, whether of one's enemies, one's family or one's self; the ability to steal and lie without being caught, which marked the good soldier of Sparta, and which is still of use; these and a score of other martial virtues rush to our memories and clamor to be reckoned in with adequate preparedness.

Such semi-martial virtues, also, as industry, which enables the people to pay taxes for military purposes, and thrift, which enables them to save money and lend it to the government in time of war; these and various others must by no means be neglected.

As to the other virtues, especially those inculcated by the Christian standard of morality,—such as humility, meekness, purity, mercy, peace-making,—they may be tolerated, provided they do not interfere with adequate preparedness; if they do,—to the lions with them!

Mental Preparedness

Knowledge is power, especially military power; brains are better than bullets; intellect can be more deadly than either muscle or morals. Hence the necessity of a proper, that is to say, a practical and military, system of education. Like the boys of Sparta, the youth of to-day should be trained in the science and art of warfare, from their early infancy up. Indeed, the State should take them over at birth and see to it that they are brought up to be truly *adequate* soldiers.

Martial literature, like "The Hymn of Hate";—

patriotic history, like Von Treitschke's; a common-sense, materialistic philosophy, like that of Frederick the Great and Nietzsche: such should be the backbone of a mental training that is adequate for preparedness.

Above all, the physical sciences of chemistry, physics, mechanics, should be strenuously pursued and devoted to the discovery of the most efficient gases, explosives, projectiles, and every possible device and vehicle for dealing wounds, stupor, death. Laboratories at home, in the barracks, with the armies on the march and in the field, should be equipped and administered for their prime duty of preserving and increasing the fighting effectiveness of their own soldiers, and of putting the enemy under the sod.

Economic Preparedness

The equipment of the modern army on the battle-front with all the necessaries of living and killing is a large and complicated task and requires efficient organization of mobilization and distribution. Some idea of this task is gained from the following excerpts from a letter written by a captain of British cavalry, "somewhere in France," to his father:

"Next to the destructiveness of the thing, what most amazes me is the number of non-combatants required to transport, to supply, to connect generally, and to provide and equip the comparatively small fighting line. Every road between the coast and the trenches hums with motor transport, every base is the centre of converging lines of supplies, every trench, every regimental, every brigade, every divisional, every army corps headquarters is connected and linked up with field telephones, motor bicyclists and motor cars. In fact, far more men in uniform are seen behind than in the actual fighting line, and what is satisfactory is that the whole machine appears to work admirably. It is a very different problem to tackle from the South African war. Here each

battle is a prolonged bombardment of a series of carefully prepared positions; all the appliances of twentieth century civilization can be brought to work and the result is good."

The Secondary Army of Invasion

This "army of workers" constitutes in fact a genuine secondary army of invasion. The primary army is, of course, down in the trenches, behind the batteries, or traveling at breakneck speed in motor-omnibuses along deep-rutted highways from one sector of the battle-line to the next. The secondary army, without which the former would be worthless, follows on behind. It is less daring, and practically immobile. Little is heard of it, but its work goes on constantly, at top speed. When it is considered that an army is in need of thousands of supplies of many different sorts, from pork sausage to mended auto tires, many of them requiring experts at manufacturing or repairing, the importance of this secondary army of skilled artizans can be better appreciated. Behind the German line these supply-centers, or Hauptpunkte, are established with exceeding care and thoroughness. In some places a whole French town is converted into an army depot, supplying the line for perhaps several miles on either side.

Food Supply

The army itself depends mainly upon meat and bread. Fresh meat is demanded, and herds of cattle have become regular camp-followers; but the salting, pickling and canning departments are of great importance. The United States learned in 1898, in the days of the "embalmed beef panic," the vital importance of solving for the army the meat problem which in our war with Spain caused far more deaths than did Spanish bullets. The vital importance of providing such delicacies as beer, whisky and other beverages, is illustrated by the fact

that the British government has procured and stored for the use of its army 20,000,000 pounds of tea.

The efficient production, organization and economical distribution of food supplies, among the population at home, as a prime means of military preparedness, has taken on immense significance in the present war. The utilization of every existing foodstuff, and the invention and production of new kinds, or of substitutes for old kinds which may grow scarce; government control and distribution; the issuing of meal tickets, etc., are examples of what "preparedness" means, so far as the food-supply is concerned.

Shelter and Fuel

As an illustration of what is meant in the provision of shelter for the huge armies in the modern field of battle, may be mentioned the fact that 50,000 portable wooden houses, 12 feet x 30 feet, each containing three rooms, are being constructed for the winter campaign of the Russian soldiers.

These afford much better shelter than did the old-time army tent; but the activity of Zeppelins and aëroplanes makes life in even such homes very precarious. Hence we should prepare to make "cyclone cellars" or underground homes for our army in the field, as the Italians and Austrians are doing in the campaign before Gorizia. The kind of homes needed for trench-fighting, as shelters against airships, shrapnel, etc., has already been indicated.

The Age of Electricity

Since the old-time camp-fires are far more dangerous in these days of aëroplane scouts and bombs than they were even in the days of Indian warfare, the problem of fuel and heat is a serious one. Fortunately, we live in an electrical age, and electricity is utilized for heat,

light, power, telephone and wireless communication, and even for killing.

Wire fences, highly charged with electricity, are already in use for sentinel purposes, and are capable of being prepared for trench-fighting as well. The war is carried on by relays of night and day shifts, and the field of operations is lighted up at night by means of powerful search-lights. These lights are made speedily available by being mounted on swift motor-cars, or on collapsible towers of considerable height. A great variety of them have already been developed, both for lighting up the battlefield and for detecting the night-raids of airships.

The United States has made a *beginning* on this line of preparedness by installing at the end of the Panama Canal four great search-lights which send their rays about twelve miles out to sea; but what a world of preparedness of this kind lies before us yet to conquer.

Motor Transportation

War-automobiles, both for attack and defense and for transportation, are as thick on the battle-front of to-day as are autos and motor-trucks on Broadway. Not only must they be innumerable, but they must also be armored for protection against bullets and airship bombs, provided with port-holes for rifle-fire, and mounting a machine-gun. For such purposes as scouting and swift attack and pursuit, the conveying of wireless and lighting apparatus, of aëroplane-destroyers, kitchen and hospital outfits, periscopes and reconnaissance outfits, the automobile is of immense military value. The motor-cycle, with an emergency speed of fifty miles an hour, is a fine adjunct to the automobile, especially for the bearing of orders.

The United States has begun to test the motor-cycle as a military asset by holding a trans-continental race;

and it has developed a few squadrons of armored automobiles. General Wood has sounded the alarm for this kind of preparedness, also, and advocates not only the increase of government-owned automobiles, but also the enlistment and organization of the hundreds of thousands of private automobile owners, who with the five or six friends accompanying them in each car, could be given an "auto military training." Here is another endless field for preparedness which may be supposed to appeal especially to the sporting instincts of the American people.

The building of good roads and of concrete bridges capable of sustaining motor-trucks and their heavy loads, is considered of even more pressing importance for preparedness than for the piping times of peace.

Horses

Armored automobiles and aëroplanes are rapidly taking the place of the old-time cavalry for scouting purposes and for swift attack and pursuit; and thus, in war as in peace, the horseless vehicle and the horseless knight are antiquating the charger and the steed that snuffs the scent of battle. That former president of the United States who declared in a letter to the American Legion that, "in the event of war I should ask permission of Congress to raise a division of cavalry, that is, nine regiments, such as the regiment I commanded in Cuba," would probably have felt strangely out of date if he and his nine regiments had been ordered into the trenches, or into their automobiles, when the anticipated invasion began, and their horses sent to the rear for the transportation of supplies and artillery.

This last duty is so onerous that the horse is still found to be a useful animal when engaged in it. The European belligerents are not only exhausting every available source of their own, but are making large demands upon American stock-yards and farms. For example, France

has sent several orders for 41,000 horses each, to be filled in the United States; the British government bought more than 100,000 horses and mules from a single company in Kansas City for use in the Boer War, and has bought $5,000,000 worth from the same company for use in the first six months of the present war.

The prices here average $150, and the cost delivered in England is about $300. On the battle-front, the average life of the horses is from eight to ten days. How many horses should we require for a good-sized war with a great power? And how much would they cost us, whether we used them here or transported them to some foreign shore?

Even for use in time of peace, when the life of a horse is a great many times longer than in war, we have only one-ninth enough horses for the cavalry in the militia, a much smaller proportion for the field artillery, and none at all for the signal and sanitary troops. For transportation purposes, we need 5,836 more wagons, and draft horses to pull them.

Evidently, it is high time that, if we are going to prepare to equip an *adequate* army, in the item of horses, in an *adequate* manner, our farmers had better begin at once to raise a greatly increased number of colts, as well as boys, to be soldiers; and Uncle Sam had better set aside a very considerable sum of money to buy, maintain and replace his stock of soldier horses.

Railways

The Germans have led the world in the construction and organization of railways primarily for military purposes. Strategic routes; bases of operation; armored trains; rolling stock suitable for transporting soldiers, big guns and military supplies; long station platforms, even in small towns, suitable for the speedy embarkation of troops; extra-long axles suitable for conveying German cars into Russian territory,—all these and a

myriad of other railway details have been worked out with military precision for military purposes.

The rest of Europe has followed Germany as fast and as far it could along this line of preparedness. But the United States has built and organized its railway system primarily for purposes of peaceful industry and intercourse; and we are assured that a military emergency would break down that system again just at it did during our war with Spain in 1898.

It is urged, accordingly, that our entire railway system be reorganized on a purely military basis; that the use of the railroads by the governments be regarded, not as a commercial proposition, but as a military one; that certain roads be designated for the transportation of troops, others for the moving of military supplies, others for the return of empty equipment, others still for supplying the non-combatant population, etc.; that a complete government census of all rolling stock, motive power and other equipment be procured; that the million and a half of railway employés be enrolled and made ready for mobilization on the tracks or in the trenches; and, in short, that everything needful be done to make our railway system a fit fighting force.

It is needless to point out that the task of building our trans-continental and local railroad lines, which this country has been grappling with for three-quarters of a century, fades into insignificance in comparison with this task of military reorganization and preparedness which the danger lest the Germans land upon our coasts tomorrow imposes upon us.

Waterways

The enthusiastic advocates of a chain of inland waterways from Maine to Florida declared, at the recent eighth annual convention of the Atlantic Deeper Waterways Association, that such a chain "would make the States along the Atlantic seaboard almost invulnerable to for-

eign invasion." A state senator from Rhode Island informed the convention that a system of inside water routes is a necessity in national preparedness and would be worth more than forty battleships. A congressman from Pennsylvania, the president of the Association, advocated both the completion of the system of waterways and the building of adequate armaments for it; and both he and another congressman from Pennsylvania demanded federal appropriations for this feature of "river and harbor improvements" and denounced the tendency to speak of such appropriations as being in the interest of "the pork barrel."

The Association set aside July 28 as the "Waterways National Defense Day," and arranged on that day excursions of state and federal officials, accompanied by army and navy officers, for the purpose of showing the utterly unprepared condition of our coast defenses. It will inaugurate in Congress during the coming winter a campaign for preparedness of its very own, designed to secure a large number of canals like that across Cape Cod, through which it would be possible to send battleships from Boston to New Orleans by an inside route, and submarines and destroyers from New York to any port on the Great Lakes and thence down the Mississippi.

This form of "pork barrel" legislation will doubtless be bitterly opposed by those prepareders who desire to see the national revenue expended on the army and navy rather than on inland waterways. But those prepareders who insist on the military value of the waterways will doubtless point to the fact that *Germany* has developed its waterways for military purposes and has made of the Rhine and other rivers as important links in its chain of defense as are the railways themselves. If Germany, why *not* Uncle Sam?

Agriculture, Mining and Natural Resources

The American farmer has been described, with all too good reason, as a "miner," who merely takes from the soil a fertility that he never replaces. Germany has taught us how, by intensive and really scientific farming, both to increase enormously our crops and at the same time to retain and increase the fertility of our soil. This lesson, very useful in time of peace, is essential to adequate preparedness for war; and it would be but logical for our government, threatened by real war with a first-class power, to take the farmers in hand and put them to school.

Other natural resources besides the soil must be most carefully conserved, preëminently in the name of preparedness. Germany has long regarded its soil, mines and forests both as important national assets and as the primary source of its sinews of war. The almost unlimited demand made by the present war for coal, iron, copper, lead and oil, has so emphasized the importance of the conservation of natural resources that it would be strange indeed if our ardent prepareders do not demand the government ownership and control of these absolute essentials of adequate preparedness for and participation in war.

Manufactures

Government ownership and control of manufactures might well seem essential, also, when one contemplates the necessity, as exemplified in Germany to-day, of an entire transformation or revolution in industry for the purpose of maintaining a first-class war with a first-class power. We have witnessed in our own neutral country the very extraordinary transformation of numerous lines of industry for supplying the demands of the belligerents for munitions of war. And yet we are informed that

American manufacturers have supplied less than one per cent. of the muntions that have been used!

If our own country were engaged in a first-class war with a first-class power, how could we possibly maintain that war unless the government followed the example, not only of Germany, but of Great Britain and France as well, and took into its own control the manufactures devoted to military supplies?

We have seen how slow and difficult it has been for these countries to achieve this transformation after the war began; why does not real preparedness demand its achievement in times of peace? Already, some Americans are demanding a government monopoly in the manufacture of munitions of war,—chiefly for the purpose of preventing private manufacturers from fleecing the government by charging exorbitant prices for their products, and by artificially stimulating the government's demand for them. Should not adequate military preparedness be added as a conclusive argument for this government ownership and control,—especially in view of the serious trouble which the British government has experienced from strikes on the part of employees in munitions factories?

But, after all, the manufacture of military supplies is of minor importance, even in war-time, when compared with a country's entire manufacturing system; for what would be the sense in fighting for land and people, if the people at home should be left to die from lack of adequate manufactured supplies? Old Sparta and Frederick II. of Prussia were right: *Adequate* preparedness for war demands the government ownership and control of industry in time of peace as well as in time of war. The old adage, "In time of peace prepare for war," is peculiarly applicable to a country's industrial system, upon which depends the welfare, not only of the soldiers in the field, but of the entire population at home.

Finance

Ours is the age of credit. In the old days of money and barter, preparedness for war might more reasonably have neglected its financial basis; although history is full of examples of the fact that bad shillings, or paper dollars, or *assignats,* have caused more real injury and misery than have the swords or bullets of the enemy. But for "adequate preparedness" to neglect a financial preparation for war would be fatal.

This form of "adequate preparedness" is too large a subject to be discussed here; but it may be suggested by one or two concrete illustrations. At the beginning of the present war, the German government commanded the banks of the Empire only to *receive* gold and silver, and not to pay it out, even to depositors. Hence, it would behoove private citizens to hoard up their gold and silver at home, in time of peace, so that they might have some of that useful commodity in hand when our great war begins.

Our government, too, should certainly follow the example of Germany and store up an immense and continually increasing supply of gold in some strong fortress. Germany started its present war-fund with the indemnity paid by France in 1871; the United States, thanks to the extraordinary balance of trade in its favor during the present war, has now on hand an unprecedented supply of gold. It should keep fast hold of this and augment it by every possible method. What are *economic laws,* when military preparedness is at stake? "Money talks"; and more than one war has been won by the "last gold sovereign"!

Again, this war has taught us the necessity of governments being able to borrow enormous sums of money,—running far into the *billions* of dollars. These loans have been placed among their own citizens and with our American financiers. Now, it is evidently a very foolish

policy for us to indulge our ambition to become a "Napoleon of finance" on the money-markets of the world, or to emulate the "Old Lady of Thread-needle Street" in becoming the world's creditor. For, not only shall we need every dollar of our own capital to invest in our own industries,—transformed as they must be for real military preparedness,—but we must also husband all our resources to be loaned to our government when the great war bursts upon us.

In the matter of taxation, too, we are obviously far from being prepared. Our chief reliance for revenue has been on import duties which would be very greatly reduced in time of a first-class war. The income tax is, and has long been, the chief reliance of European nations for both the preparation and conduct of war; we have only made a beginning along this line. It is true that our present income tax has been necessitated by our enormously increased expenditures on our army and navy; but our military experts tell us that we are still "absolutely unprepared." The rate of the income tax, therefore, should be largely increased, it should be made progressive in proportion to increased incomes, and the exemption limit should be lowered far below the $3,000 or $4,000 point where it is at present. Let us really prepare!

Political Preparedness

It is entirely obvious from the above considerations that our American Republic is in crying need of political reform, and perhaps of revolution.

Absolutism vs. Democracy

It has, in fact, become a grave question during the present war whether or not a democracy can really prepare for and conduct a great war in Twentieth Century style. The English, with their popular form of government,—fully as democratic as our own in most respects,

—have seemed to lose faith at times in the military efficiency of any government short of despotism. Even Germany, on the crest of a wave of victory, has had trouble with a relatively innocuous Reichstag; while Russia has shuddered at the bare shadow of popular government as represented in its Duma. What would not happen to the military efficiency of our president, in time of a great war, with "Congress on his hands"? We find it a sufficiently difficult task to induce or compel Congress to appropriate a paltry billion in *preparation* for war.

A Censorship of Public Opinion

Again, what can a country hope to achieve in the way of conscription and a number of other military *essentials,* when freedom of speech and a free press are rampant? A strict censorship has been found necessary in France and Great Britain, but has been increasingly difficult to enforce. In Germany, now, they manage such things better; for in time of peace they provide,—and use occasionally by way of practice and wholesome warning,—good, strong muzzles for the mouth-pieces of popular sentiment. Let us, therefore, take warning, and include in our adequate preparedness programme a sure means of preventing public opinion from interfering with military efficiency, by crushing that opinion at its birth or providing a strait-jacket for its callow youth.

State Socialism

From the point of view of military preparedness,—as well as from some other points of view,—it is a shameful waste of the human instruments of warfare to permit disease, crime, pauperism and unemployment to decrease the number and undermine the efficiency of the population.

The German government has dealt with these evils or weaknesses with the iron hand of a military paternalism

or state socialism. It has "cleaned up" its population and made it truly efficient for successful warfare.

Why should not we go and do likewise? We can stamp out the "white plague" and the other scourges of the poor, and thus enable their children to grow up into sturdy soldiers, or the mothers of sturdy soldiers.

We can keep our convicts busy in making munitions of war, or in building military roads; we can diminish the commission of crime by threatening to place our criminals in war-galleys, or coast fortifications, or on the front line of battle when war begins.

We can abolish pauperism by establishing the European system of insurance against illness, disability, accident, old age. We can provide pensions for *everyone* in the public service [think of our $160,000,000 per year for the soldiers long since dead and gone], and for the inventor of every military device. We can give employment and wages to the vast army of our unemployed by drafting them into the real army and navy to be trained into efficient fighters, as well as to be paid wages.

It is high time that we were up and doing before the enemy is knocking at our gates. Let us get over our childish aversion to paternalism in government and give a genuine *patria potestas* to our too good-natured Uncle Sam. Let us drop our fear of the name of socialism, and go in for a thoroughgoing state socialism which will prepare us to go into a first-rate war and *win*.

Down with the Hyphen

United we stand, divided we fall, is peculiarly true in war and in preparation for war. What can America achieve in a first-rate war, or in preparing for it, if there are no real Americans in America, but only warring factions of British-Americans, German-Americans, French-Americans, Austro-Americans, Russian-Americans, Turco-Americans, etc., etc.? The first step in the pre-

paredness programme is obviously to achieve national union.

In the time of the French Revolutionary and Napoleonic Wars, when our Republic was in its infancy, our American citizenship was rent in twain by a pro-British and a pro-French party. Washington and a few other real Americans were barely able to hold the Union together. This Union received many a jolt in the half-century that followed; but it was hoped that in the fires of a dread civil war it had finally been welded together forever and without the shadow of a fear of the old weakness of disunion. This hope, it now appears, was too optimistic. The President in his last message to Congress, after urging a complicated plan of preparedness, declares that we should prepare, not so much against foreign foes, as against the foes within our own household. His words are as follows:

"I have spoken to you today, gentlemen, upon a single theme, the thorough preparation of the nation to care for its own security and to make sure of entire freedom to play the impartial rôle in this hemisphere and in the world which all believe to have been providentially assigned to it. *I have had in my mind no thought of any immediate or particular danger arising out of our relations with other nations. We are at peace with all the nations of the world, and there is reason to hope that no question in controversy between this and other governments will lead to any serious breach of amicable relations, grave as some differences of attitude and policy have been and may yet turn out to be.*

"*I am sorry to say that the gravest threats against our national peace and safety have been uttered within our own borders.* There are citizens of the United States, I blush to admit, born under other flags, but welcomed under our generous naturalization laws to the full freedom and opportunity of America, who have poured the poison of disloyalty into the very arteries of

our national life; who have sought to bring the authority and good name of our Government into contempt, to destroy our industries wherever they thought it effective for their vindictive purposes to strike at them and to debase our politics to the uses of foreign intrigue. Their number is not great as compared with the whole number of those sturdy hosts by which our nation has been enriched in recent generations out of virile foreign stocks; but it is great enough to have brought deep disgrace upon us and to have made it necessary that we should promptly make use of processes of law by which we may be purged of their corrupt distempers.

"America never witnessed anything like this before. It never dreamed it possible that men sworn into its own citizenship, men drawn out of great free stocks such as supplied some of the best and strongest elements of that little, but how heroic nation that in a high day of old staked its very life to free itself from every entanglement that had darkened the fortunes of the older nations and set up a new standard here,—that men of such origins and such free choice of allegiance would ever turn in malign reaction against the Government and people who had welcomed and nurtured them and seek to make this proud country once more a hotbed of European passion.

"A little while ago such a thing would have seemed incredible. Because it was incredible we made no preparation for it. We would have been almost ashamed to prepare for it, as if we were suspicious of ourselves, our own comrades and neighbors! But the ugly and incredible thing has actually come about and we are without adequate Federal laws to deal with it.

"I urge you to enact such laws at the earliest possible moment and feel that in doing so I am urging you to do nothing less than save the honor and self-respect of the nation. Such creatures of passion, disloyalty and anarchy must be crushed out. They are not many, but

they are infinitely malignant, and the hand of our power should close over them at once. They have formed plots to destroy property; they have entered into conspiracies against the neutrality of the Government; they have sought to pry into every confidential transaction of the Government in order to serve interests alien to our own. It is possible to deal with these things very effectually. I need not suggest the terms in which they may be dealt with.

"I wish that it could be said that only a few men, misled by mistaken sentiments of allegiance to the governments under which they were born, had been guilty of disturbing the self-possession and misrepresenting the temper and principles of the country during these days of terrible war, when it would seem that every man who was truly an American would instinctively make it his duty and his pride to keep the scales of judgment even and prove himself a partisan of no nation but his own. But it cannot. There are some men among us, and many resident abroad who, though born and bred in the United States and calling themselves Americans, have so forgotten themselves and their honor as citizens as to put their passionate sympathy with one or the other side in the great European conflict above their regard for the peace and dignity of the United States. They also preach and practice disloyalty. No laws, I suppose, can reach corruptions of the mind and heart; but I should not speak of others without also speaking of these and expressing the even deeper humiliation and scorn which every self-possessed and thoughtfully patriotic American must feel when he thinks of them and of the discredit they are daily bringing upon us."

It is possible, then, that we have come to this; that, a century and a quarter after our political union began, and a half-century after one great civil war was supposed to have cemented it forever, we shall be called upon to fight another still more awful civil war? And that our pre-

paredness must be directed against this danger which is nearer and greater than is the danger of attack by foreign foe? What would be the scope and meaning of "adequate" military preparedness for such an emergency as this?

International Preparedness

If we are to prepare "adequately" against naturalized or alien foes within our own borders, as well as against the foreign foe from whose loins they sprang, it would appear to be but ordinary prudence to carry our preparedness programme into other lands beyond the seas.

A Foreign Press Campaign

We have witnessed during the present war an extraordinary appeal through the manifold products of the press to the public opinion of neutral nations, especially of our own. Both camps of combatants in the war have defended continually and vehemently their own motives and conduct, and blackened those of their opponents. We know, it is declared, who our future enemies are to be. Then why not now, in time of peace, create public opinion in our favor throughout the world and against the enemy, in wise preparation for the war?

At the same time, a campaign in newspaper, magazine and the "best sellers," should be carried on at home for the purpose of sowing in the hearts of our own people seeds of suspicion, envy, hatred, which may spring up into a harvest of embittered *efficient* soldiers when "The Day" of reckoning with our enemy arrives.

Foreign Bases of Supply and Operation

If we are to act upon the wise old military maxim of carrying our war of defense into the enemy's territory, we should include in our preparedness programme the organization, within that territory or close upon its borders, of adequate bases of supply and operation. These

will be all the more necessary for us because of the long distances across the oceans to our central base at home.

We know how important to Germany have been the Belgian railways and the French coal and iron mines. Surely there must be some way in which we can, by hook or by crook, establish in time of peace an invisible control over such resources on the boundaries of the enemy's country which would stand us in good stead in time of war.

We have heard stories of massive concrete piers for ocean steamers, or for factories and warehouses, built by Germans in London, Paris and other advantageous places [even in Hoboken!], and all ready for use as mountings for big guns when the German troops arrived. Surely there are enough iron, cement and patriotic Americans living abroad, to accomplish these and other forms of preparedness in the territory of our prospective foe!

Espionage and Incendiarism

To spy out the best places for these bases of operation, and to enable them to be built with the requisite degree of secrecy, a far-reaching system of secret service for work in foreign lands must be organized. Merely to arrest in America, now and then, a spy or two of German, British or Japanese origin, is far from adequate preparedness.

We know something of the wide-spread system of espionage, which existed before the war among the "possible enemies" of Europe, by reading of the many trials and convictions of foreign spies, in the various lands which are now at war with each other. Doubtless, they all learned much that is of much service now that war has come. Here is one fertile field in which Yankee ingenuity and cleverness can expand itself in patriotic and adequate preparedness.

But even it is far from sufficient. We have had

brought home to us the military importance of dynamiting munition plants and paralyzing industry by causing strikes and boycotts. Here is another fair field for the cultivation of our adequate prepareders; and it lies not only within the territory of our possible enemy, but within that also,—as we Americans have learned full well,—of those neutral lands from which our enemy may hope to gain his military supplies, the raw materials of his industry, and his food supply as well. In the barbarous days of old, ambassadors were those who were sent to *lie* abroad for the good of their country. In our more civilized and efficient days, we might send forth a cloud of spies, incendiaries and the like, who would put the I.W.W. and nihilists to shame by their far-reaching preparedness in foreign lands for our victory in time of war.

Offensive and Defensive Alliances

Above all, in these days when war itself is internationalized and a half-dozen nations or more fight on either side, it behooves us to instruct our ambassadors to secure understandings, *ententes* and iron-clad alliances with the powers of this earth, both great and small. Even the little fellows in the Balkans may come in handy, as we have seen.

Washington's warning against entangling alliances is entirely out of date, and if adhered to might well cause our country itself to be eclipsed. If a victorious Germany and her allies are to attack us, we should prepare for such an emergency by making an offensive and defensive alliance with all that is left of Germany's opponents and with all that are left of the neutral states. If a victorious Great Britain, Japan and their allies are to attack us, it is none too early,—perhaps, in view of our last year's experiences, it is even now too late,—for us to bind the Teuton and the Turk to our sides as shield and buckler.

J. A SUMMARY OF PREPAREDNESS ON LAND

Looking back over the many and vitally important items in this programme of "fundamental preparedness," it seems almost like a descent from the sublime to the ridiculous, from the text to the foot-note, to become absorbed again in the programme for mere military preparedness on the land and under it. But since this is what the prepareders of to-day have fixed their hearts upon, and are urging upon the attention of our citizens, the plunge must be taken, and a summary of land preparedness be presented before we proceed to the preparedness programmes for the seas and air.

A standing army of regular or professional soldiers is alone adequate, one school of experts,—the most expert of all,—declares; not tens or even hundreds of thousands of these, but *millions* of them are needed for adequate defense. In a first-class war between first-class powers, capture or sickness, death or permanent disability, or even "missing," accounts for hundreds of thousands and millions. Two millions "missing," five millions captive, eleven millions dead or permanently disabled; such is the record of the European War to date.

The *cost* of an "adequate" standing army of from 250,000 to 5,000,000 men would be from $250,000,000 to $5,000,000,000 *per annum!*

If we depend upon Reserves, we find that we have *16* as against Germany's 4,430,000 reserves. The new plan would give us 400,000 reserves at the end of seven years, and at the cost of some $200,000,000.

The State Militia, or National Guard, has so many and such grave defects that it is seriously proposed to abolish it. If it has too strong a political hold on life for this, then bolster it up by *pay*,—a minimum annual pay of from $60,000,000 to $80,000,000; but whatever is done to it to strengthen it as a makeshift, we are as-

sured that it will never be numerous enough or truly adequate.

Volunteers, in the shape of a "Federal Citizen Army of Continentals" and to the number of 400,000 within the next three years, are proposed to help eke out the strength of our regulars, reserves and militiamen. But these newcomers are resented alike by the regulars and the militiamen; neither their number nor training is regarded as adequate; and their cost is prodigious.

To enlist 150,000 regulars, 400,000 reserves, 2,000,000 militiamen, and 400,000 Continentals, would be very difficult, perhaps impossible, in a land whose people are absorbed in the world's real work. Without conscription, which democracy,—even in Great Britain in the midst of the greatest of wars,—rejects as suicidal, many novel incentives would have to be resorted to, and many novel sources of supply would be needed to be tapped.

To give an "adequate" training to such a large number of men and officers, outside of the regular army, would require a number and variety of experiments in the field of education, which would prove extremely expensive and utterly inadequate, and would militarize the American republic into the despotism of a Prussia or a Sparta.

Turning to the material of warfare, we find that modern war requires *thousands* of big guns, of from 12-inch to 17-inch calibre, with a range of from ten to twenty miles, costing about $100,000 each, and lasting for about 150 shots.

Rifles having been temporarily eclipsed,—perhaps antiquated,—by machine-guns, we find that we need twelve of these for every 1,000 troops; or, if we adopt the German one-man machine-gun, 100 for every 1,000 troops. Our facilities for making them can turn out 5,000 in three months; to equip a small army of 800,000 men with them would require about four years.

We think that we have revolutionized our munitions

industry during the present war, and we have; but that revolution, compared with what would really be needed to equip us "adequately" for a great war, is like Shay's Rebellion as compared with the French Revolution. If we supply Europe with 1 per cent. of the ammunition required in the present war, what does preparedness along this line mean in supplying ourselves "adequately" for a great war of our own?

What *kinds* of ammunition shall we prepare? Smokeless powder, or high explosives, or poisonous gases, or burning liquids? How many and what kinds of bombs and shells? Shall we go in for them all, and make as many as possible of every kind? If so, can our industrial system, our national pocket-book, and our moral standards endure the strain? And what assurance have we that the year of grace,—and science,—1916, will not make the whole lot of them as antiquated and inadequate as a last year's bird's-nest?

As for fortifications,—thus far we have merely "played politics" with our inland forts, which would be of as much service in a real war of "Chubby Berthas" as an Indian tomahawk or a tree-trunk. For these, as for *moving* forts in the shape of armored trains, trolleys and automobiles, we have illimitable opportunity,—as illimitable as our valleys and rivers and mountains, our railway, trolley and high-road systems. Along our coasts, we have some 200 miles *partially* protected; and about 14,000 miles *adequately* to protect.

Even such amazing and un-American fortresses as Liège, Antwerp and Warsaw are inadequate before the onslaught of 16 and 17-inch guns. Fortress guns, such as our 12-inch ones, with an effective range of 13,000 yards, are not adequate against such guns as the 15-inch guns of the *Queen Elizabeth,* with an effective range of 21,000 yards.

Yes, *we* could get them, too, if we got down to business on the military programme. But we should at least

know what this *business* means, from every point of view; and of this we should be informed also, that the eternal rivalry between the means of offense and the means of defense is no nearer an end and an "adequate" decision than it was in the days of the sling-shot and the tree-trunk. Indeed, the advent of the aëroplane makes "preparedness" of every kind on land as uncertain and inadequate as a mercury or quicksand foundation for a temple.

Dig, hide, burrow,—such are the watch-words in this war of aëroplanes, bombs and shrapnel. Intrenchments stretching 8,800 miles is the proud record of this present war. We are said to have men and facilities at present for intrenching for about 65 miles. When we contemplate the men, tools and materials needed for "adequate" digging-in, living-under and fighting-from, our broad and generous piece of Mother Earth, we realize something of the endless vista of preparedness that opens up before us along this line.

It is needless to recount again the "fundamental preparedness" of the individual and society, by the countless physical, mental, moral, industrial, commercial, financial, political and international means available in this Twentieth Century. But it may again be stated that these means are absolutely essential to "adequate" preparedness; that to neglect them, or to use them half-heartedly, is to invite disaster; and that to develop them to the limit is not only an endless task, but one that is fraught with the deadliest menace to the prosperity, integrity and liberty of our American Republic.

VII

PREPAREDNESS ON AND UNDER THE SEA

BUT, the naval experts assure us, all this endless preparedness on the land and under it is wholly unnecessary; the navy is the best and only really possible defense for the United States. With only Canada to the north of us, and only Mexico to the south, and with the Pacific and Atlantic Oceans on either front, we can and should depend upon naval preparedness to defy a hostile world.

But, some enthusiasts declare, give us *adequate* preparedness on the sea, and we will not be obliged to face a hostile world; a *good* navy is the best preservative of peace. The field secretaries of the Navy League have been preaching this philosophy of peace for years, and they are still preaching it in spite of the present worst war in history between Great Britain and Germany, both of which countries, all the experts are agreed, have far better navies than our own. Surely, if any navy can preserve peace, Great Britain's might have been expected to do so.

No, other naval enthusiasts admit, we can never hope to build a navy that can insure peace; but we can build a navy for defense when the "inevitable" future war bursts upon us. At a recent meeting of the Navy League in Philadelphia, for example, a doctor of divinity declared: "Christianity and war are incompatible; you can't link an army and navy to Christianity. They don't jibe. It is true that I preach that war is wrong. But in the face of a world-war, and the danger to this country of a possible war, Christianity is helpless. Therefore," he continued, "I hung up my Christianity on Au-

gust 4, 1914, and will not take it down until the end of the war. And a navy at least double the size of our present one is a sheer necessity. It is too bad that it is not lawful to murder the man who does not understand the need of a greater navy."

The frank speaking of this representative of the Prince of Peace is not emulated, at least in public, by many other clerical, civil or military critics; but his sentiments are evidently shared by a goodly number, and it is obviously desirable that all should at least "understand the need of a greater navy." Let us, then, analyse the naval programme, taking into consideration our present preparedness on and under the seas, the preparedness of other nations, and what we should be called upon to do, so as to be *adequately* prepared to meet a first-class naval power in Twentieth Century naval warfare.

A. PREPAREDNESS ON THE SEA

Dreadnoughts and Superdreadnoughts

We naturally turn first to the warship,—the dreadnought, or *super*dreadnought, as it has so recently and so rapidly become.

Their Increased Size and Cost

Men still in early middle life have watched these warships grow. Twenty-five years ago the United States built its first real modern battleships; these were the *Massachusetts,* the *Indiana* and the *Oregon,* of 11,000 tons' displacement. Ten years ago, the first "dreadnought" was launched, with a displacement of 18,000 tons. This year, the *Pennsylvania* was launched with 31,400 tons; and the superdreadnoughts planned for 1916 and 1917 will have 32,000 tons or more. Within the same quarter-century, the cost of our warships has increased from $6,000,000 for the *Massachusetts* to $14,000,000 for the *Pennsylvania,* and for the superdreadnoughts planned for 1916 and 1917, $15,000,000 and $18,-

800,000, respectively. Thus within twenty-five years, our warships have increased nearly three-fold in size and more than three-fold in initial cost.

So huge are these naval monsters that there are very few harbors in the world that can accommodate them, and but very few drydocks that can build or repair them. So expensive are they that there are very few universities or colleges that possess an endowment equal to the cost of a single one of them, or have an annual expenditure equal to its maintenance.

How Many Do We Need?

How many of these superdreadnoughts do we need, to be "adequately prepared"? The General Board of the Navy, which is the official adviser of the Navy Department, has advocated for a number of years a navy comprising forty-eight battleships, less than twenty years old, and 192 destroyers. This the Board has considered a suitable "foundation of fighting ships for purposes of defense against the strongest nation, except Great Britain."

Just why the number of battleships was placed at forty-eight, no man can tell. There happen to be forty-eight States in the Union, and it may be considered a delicate compliment to continue the plan of giving each of them a dreadnought as a namesake. Or it may be that, since the Board advocated the building of four battleships each year, it calculates that at that rate we should maintain our navy at forty-eight ships less than twenty years old. But what relation either the namesake scheme, or the four-each-year plan, has to "adequate preparedness," the Board has never deigned to explain.

At the beginning of the present war, we had 12 battleships of the *dreadnought* type, either built or building; Great Britain had 36; Germany had 20; France had 12, and Japan had 6. Of the *pre-dreadnought* type, we had

22; Great Britain 40; Germany 20; France 18, and Japan 13. If we had been called upon to fight Germany, our battleships would have been to hers as 17 to 20; or Germany and its present allies, as 2 to 3. If Great Britain is our foe, then our battleships would have been to hers as 1 to 2; or Great Britain and her present allies, as 1 to 5. And let us not lay flattering unction to our souls, our naval experts warn us, by fancying that the sea-power of the present belligerents is being mutually destroyed. We are assured that even during this year of stupendous warfare, Great Britain has laid down the keels of eleven dreadnoughts and Germany nine! We are warned, also, to contemplate the navy of a *victorious* Great Britain, or a victorious Germany, when the fleets of its defeated rival have been added to it.

To keep pace with the battleships of our "possible enemies," then, how many shall we build each year? If we are to fight Japan, one a year is not enough; if we are to fight a normal Germany, two a year are not enough; if we are to fight a victorious Germany, four a year are not enough; if we are to fight a normal Great Britain, six a year are not enough; if we are to fight a victorious Great Britain, no man can say how many are enough!

Under the spur of the preparedness campaign, our present administration is proposing the expenditure upon our navy during the next five years of *one billion dollars.* Of this sum, more than one-half is to be expended on the construction of new ships. Sixteen of these, costing about $300,000,000, are to be battleships and battle cruisers. That is to say, if this programme is adopted, we shall have at the end of five or six years, 28 dreadnoughts and battle cruisers, while Germany had 28 a year ago, and Great Britain had 46.

It may be salutary for us to remember, also, the statement of a former Secretary of the Navy that we have already spent a half-billion dollars *more* upon our navy

than Germany spent upon hers, but that ours is a bad second to it!

Armored Cruisers

Next, consider the item of *armored cruisers.* The first of these, the *New York* and the *Brooklyn,* were built twenty-five years ago; they had 8,000 and 9,000 tons' displacement; and a speed of 21 knots. Since then, armored cruisers have grown in size to 14,500 tons' displacement, and in speed to 22 knots. At the beginning of the war, we had 11 of these, as against 34 for Great Britain, 9 for Germany, 20 for France, and 13 for Japan.

The new preparedness programme provides for no more of these cruisers, for the reason that they have been made obsolete by the submarine and the battle cruiser.

Battle Cruisers

But let us not flatter ourselves on being ahead of Germany in the item of armored cruisers, even though we are behind Japan and have only one-third as many as Great Britain. For Germany, Great Britain and Japan have been building *battle cruisers,* which are a type far superior to the armored cruiser, having a displacement of from 20,000 to 30,000 tons, and a speed of from 27 to 31.75 knots. Of these formidable warships, Great Britain had built or building at the beginning of the war 10, Germany 8, Japan 4, and the United States none at all!

The effectiveness of the battle cruisers as against even the heavily armored cruisers, was shown in the Battle of the Falkland Islands, last December, when the British *Invincible* and *Inflexible* so readily destroyed the German *Scharnhorst* and *Gneisenau.*

The "war games" of our navy during the past summer have also revealed, to the navy men, the ease with which an invading expedition equipped with battle cruisers, could evade or destroy our existing navy and land

troops on the Chesapeake Bay, the Delaware River, and Long Island, thus menacing Washington and Baltimore, Philadelphia, New York and Boston. The "theoretical" battle cruisers in these war games, by reason of their long range and high speed, enabled them, according to the umpires, "to pick off the slower and weaker cruisers almost at will, at the same time eluding the supporting dreadnoughts." One of our naval experts, to whom Japan looms large on the western horizon, declares: "One of these powerful ships [that is, Japan's four battle cruisers] could in one swoop crush our entire Pacific fleet, destroy our solitary dry-dock at Olongapo in the Philippines, cross the sea, and raid every unfortified city on the Pacific Coast from Sitka to San Diego, meanwhile coaling in our ports, and on the way home capture Guam. Nothing of ours could overtake and destroy it."

Under the spur of such expert terrorizing as this, the new preparedness programme proposes to remedy this apparently fatal defect in our navy by giving us, by the end of 1921, six battle cruisers at a cost of $105,000,000. This would place us ahead of Japan,—provided that Japan builds no more in the meantime; but even then we should lag behind the number that both Great Britain and Germany had a year ago.

Other experts declare that it is foolish for us to enter into the competition of building battle cruisers, for they seriously question the genuine efficiency of this kind of battleships. It is argued, for example, that they are a hybrid, and possess neither the speed of the light cruiser with equal engine power, nor the heavy armor and array of guns of the dreadnought; that, consequently, they will prove a failure, as all other hybrids have done,—notably the old *Texas* of 1889, which was a cross between a battleship and a cruiser, and because of "inefficiency" was finally used as a target in Chesapeake Bay. Again, the halting of four British battle cruisers after they had sunk the German battle cruiser, *Blücher*, in the

Battle of Heligoland Bight, last January, is pointed to as evidence of the battle cruiser's helplessness in the face of the submarine.

At the very least, these critics urge, the European battle cruisers should be given a fair trial in the present war and proven a real success, before the United States invests a hundred millions in them.

Scout Cruisers

Again, consider the item of "*light armored cruisers*" or "*scouts,*" which are used for the protection or destruction of commerce; for scouting service and the destruction of torpedo craft, when with the battle fleet; or for the same service when with the torpedo flotilla. Of these, the United States had built or building at the beginning of the war, 14; Germany, 46; Great Britain, 91; and Japan, 13. Our new programme proposes 10 more of these before 1921 at a cost of $50,000,000; but even then we shall be a long way behind the point reached by two of our "possible enemies" at the beginning of the war!

Torpedo Boats and Destroyers

Torpedo boats, as launchers of torpedoes, have been antiquated by the advent of submarines; but torpedo boat destroyers are still demanded as the protectors or sentinels of dreadnoughts against submarines. Some critics of our navy consider them "the most war-ready units of the navy"; but declare that we have not nearly enough. The General Board of our Navy demands four of them for each dreadnought, or 192 in all. Counting in the torpedo-boats of earlier type, we have 75; Germany, 154; Great Britain, 237 (besides hundreds of armed fishing-boats); and Japan, 79. The new programme proposes to give us within five years, 50 more destroyers at a cost of $68,000,000, or 125 in all; again, a long way behind the Great Britain and Germany of 1914.

B. WHAT SHALL OUR PROGRAMME BE?

Taking note of the five classes of above-water fighting-craft, we find ourselves outclassed, at the beginning of the present war, in all of these by Great Britain; in four of them by Germany; and in three of them by Japan.

	Great Britain	Germany	Japan	United States
Battleships				
Dreadnoughts	36	20	6	12
Pre-dreadnoughts ...	40	20	13	22
Battle Cruisers	10	8	4	0
Armored Cruisers	34	9	13	11
Scout Cruisers	91	46	13	14
Torpedo Boats	237	154	79	75

The new preparedness programme proposes to spend $411,000,000 within the next five years upon 76 more ships of the five types, and thereby increase our number to 210.

Taking them all together, and adding *coast defense vessels* (of which Great Britain has none), for Germany 2, Japan 2 and the United States 4, we find the totals to be: Great Britain, 448; Germany, 259; United States, 214; and Japan, 130.

On the showing of these official figures, we might overtake a normal Great Britain, in the next twenty years, by trebling our yearly outfit of war-craft; and a normal Germany, by doubling it. As to a victorious Great Britain, or a victorious Germany: who shall say what our programme should be? As to the expense of such a programme, we may get some idea from the statement of a former Secretary of the Navy, Mr. Meyer, that we have already spent $500,000,000 *more* upon our navy than Germany has spent on hers! And from the further fact that the new preparedness programme, with an expenditure of nearly $500,000,000 more, would not bring us, by the end of 1921, within 40 ships of what Germany had in

1914, or within one-half of Great Britain's number a year ago!

Such facts as these, however, are of small significance to our prepareders. They reply, as Congressman Gardner does: "I believe that we ought not to acquiesce in the John Bull theory that they be allowed to have twice as many ships as the United States [he should have said *thrice*] or anybody else on earth."[1] And in regard to the expense, they say, also with Mr. Gardner: "The armament of Germany and Great Britain has been made almost entirely without regard to cost;—when it is a question of national safety and the safety of democracy, as in our case, I think they should be made without regard to cost."[2]

The prepareders, when they argued that *peace* could be maintained only by "adequate armaments," were thoroughgoing peace-at-any-price men; now that they believe in "adequate armaments" for purposes of *defense*, they are still any-price men. But, instead of being willing to pay as they go, and bearing the burden of expense themselves, they propose to shift the burden to the shoulders of future generations by issuing *bonds* to secure the funds for their "preparedness" programme. Iron-clad as is their determination to *prepare*, they are equally determined not to *prepay*.

Great Britain's Two-Power Policy

The British Government has long advocated a "two-power" policy, or a policy of "two keels to one"; that is, the policy of maintaining England's navy as equal to the navies of any other two powers. At the height of the popularity of this policy, England held a review of its navy, which was participated in by *twenty-eight miles* of warships, steaming one behind the other as close as safety would permit. That same summer, England

[1] Before the Committee on Naval Affairs, December 18, 1914.
[2] *Ibid.*

passed through an acute panic of fear lest she was liable to an invasion from Germany. It was the summer when the play, "An Englishman's Home," set England wild; and the answer of England's big navy men was, of course, build twenty-eight *more* miles of warships. The opponents of "preparedness" endeavored to point out the need of ascertaining and removing Germany's hatred or fear of England, and emphasized the fact that Germany was building and launching dreadnoughts only in imitation of England, and because of Germany's fear of England's navy. This effort was in vain; the mad competition continued at an accelerated rate, until—the greatest war in history, and the determination on each side to destroy the other's menacing navy.

Our Two-Ocean Policy

England's policy of "two keels to one" and Germany's policy of "a navy for defense," was brought across the Atlantic during a recent presidential administration and translated into a "two ocean policy," or the policy, in the words of President Roosevelt, of having a navy so large that one fleet could be maintained on the Atlantic and one on the Pacific, each of them able to cope with any fleet that could be sent against it. This policy at that time was evidently aimed at Germany and Japan. But during the present war, it has been defined by a United States Senator as follows: "Our national defense requires a fleet at least as powerful as those of Great Britain and France on the Atlantic, and of Japan and Russia on the Pacific"!

When asked as to "adequate" defense against Great Britain's navy, the presidential reply was that, when the Panama Canal is opened, the two fleets can readily coöperate with each other against even the mistress of the seas. President Roosevelt's successor argued that, with the opening of the Canal, we should be able to keep stationary, and even to diminish, the two-ocean fleets. Now,

however, that the Culebra Cut continues to slide, and reduces for weeks at a time the level of the water in the Canal to thirty feet, whereas at least thirty-five feet are necessary for the passage of a dreadnought, our naval experts have returned to the full two-ocean policy.

It has been found in fact that the Panama Canal has become a great military and naval *liability,* and not an enormously valuable *asset.* As a part of the coast-line of the United States, and as one of the supposedly greatest prizes of modern warfare, not only has it been fortified at enormous expense, but its defense is put forward as one of the prime reasons for greatly increasing our navy. Taken in connection with our naval base at Guantanamo, 700 miles distant, it is regarded as "the Gibraltar of the American Mediterranean," and has become the object of utmost solicitude on the part of those who demand for this "Caribbean Gibraltar and Mediterranean" as much or more naval and military protection than Great Britain accords to their European counterparts. The present war has shown also the ease with which a dirigible could drop explosives on the Canal, so as to block it up for an indefinite time; and a new alarm has arisen lest, when the United States goes to war with Japan and sends its navy into the Pacific, Germany will send a bomb into the Panama Canal and then seize the opportunity, in our fleet's absence from the Atlantic, to invade Long Island and New York or Boston!

Hence the two-ocean policy is regarded as indispensable, as far as Germany and Japan are concerned; while as for Great Britain,—well, why *should* John Bull be permitted, as Mr. Gardner pointedly inquired, to have twice or thrice as many warships as Uncle Sam? War is *hell,* Mr. Gardner admits; but, he continues, "the most pitiable animal known to natural history is a cat in hell without claws. I want more dogs of war," he shouts, "and I want those dogs to have teeth." Well, if we are really going to permit our country to go to hell, in the rôle of a

black cat or a yellow dog, we had better get down to business on the feline chiropodist's and canine dentist's tasks that lie before us. But let us go into the business, at least, with our eyes wide open and realize entirely the kind and number of claws and teeth we should require, as cat or dog, to whip the British lion or the German double-eagle.

A Navy's Cost and Obsolescence

It is not merely the greatly increased number of battleships demanded by the preparedness programme that we should bear in mind, but also their greatly increased cost. Fifteen millions of dollars seemed to be and was a stupendous price to pay last year for a single dreadnought; but next year, it will cost *nineteen* millions. Torpedo boat destroyers, too, have increased in price from $925,000, for the last one authorized by Congress, to $1,360,000 apiece for those now demanded. These, of course, are merely the prices of the ships when launched,—their initial cost; and to this must be added the cost of their maintenance and up-keep, ranging as high as $1,000,000 per annum for a dreadnought.

But still the whole story of cost is not told. For no sooner is a battleship launched,—in fact, no sooner is its keel laid down,—than it begins immediately to deteriorate; not so much because it is a machine and deteriorates as all machines must do, but especially because bigger and better fighting machines are immediately planned and constructed.

As an American newspaper humorist puts it: "Straw hats in December are not as out of date as a battleship by the time it has become launched. It costs $15,000,000, and is the most powerful thing on earth, except, perhaps, a United States district judge. But the nation which has just dug down for it can't take any pleasure in it, because the country next door has just completed plans for a ship which will make this one look as foolish as a rowboat

with a hoop-skirt for a turret." Or as a First Lord of the British Admiralty puts it: "It is wrong and wasteful to build a single ship for the navy which is not wanted. Nearly three years of her brief life have been lived before she is born. Before she is even launched, the vessels which are capable of destroying her have been projected. It is an ill service to the Navy to build a single ship before its time." The "life" of a battleship, after it has been launched,—that is, in time of peace,—is placed by the experts at about fifteen years. During that short period only, can it be placed in the "first fighting line"; and during even that period it continues day by day to lose in absolute and relative efficiency. Hence, each generation must not only build, but *re*build, its fleet of dreadnoughts.

The proud "sovereigns of the seas" of a dozen or fifteen years ago are as useless to-day for winning a victory in a first-class naval battle as is a last year's bird's nest for hatching next spring's chickens. Again, compare the six battleships of the *Connecticut* class, which were built or building in 1905-6, with the three superdreadnoughts of the *California* class, which are now being built. Their lengths are 450 feet, as against 624 feet; their displacement, 16,000 tons, as against 32,000 tons; their speed, 18 knots, as against 21 knots; their armament 4 12-inch, 8 8-inch and 12 7-inch guns, as against 12 14-inch and 22 5-inch guns; their cost less than $8,000,000, as against more than $15,000,000.

The Constant Revolution in Naval Warfare

But even yet the whole story is not told. For, not only are bigger and better ships of the same type built from year to year and month to month, but entirely new types, or fundamental modifications in the old types, are invented, and the whole science of ship-building is revolutionized. For example, although the price of torpedo-boat destroyers has increased during the war by 50 per

cent., their usefulness as scouts has been practically nullified by the development of aëroplanes.

One of the most striking illustrations of the revolutionary results of introducing new types, or fundamental modifications of the old, is that of the launching of the first "dreadnought." Great Britain launched this monster of the deep with unrestrained rejoicings; for it seemed to make assurance doubly sure that with *such* a warship British preparedness was complete. It was soon realized in England, however, that the advent of the monster had dwarfed into relative insignificance between 700 and 800 of Great Britain's sea-dogs of war. In Germany, too, the naval experts recognized a great opportunity, and at once followed the example of building dreadnoughts. So well did Germany succeed in this that the superiority of Britain's navy was endangered; and, to maintain its two-power policy, it was necessary to build superdreadnoughts. Along this line, also, Germany began to compete, and the contest waxed hotter and hotter until this war was precipitated to solve by *tour de force* the insoluble problem. Meanwhile, the superdreadnoughts eclipsed not only all the pre-dreadnought ships, but even the dreadnoughts themselves.

But it is not merely through large increase in size and armor, that a revolution in building warships may be caused. Radical changes in ordnance and in speed have had the same result. For example, the effectiveness of 12-inch as against 8-inch guns, and of 6-inch as against 4-inch guns, was shown in the battle of the Falkland Islands last December, when the *Invincible* and *Inflexible* sunk the *Scharnhorst* and *Gneisenau,* and the *Glasgow* sunk the *Leipzig.* The loss of the *Bluecher,* in the Battle of the North Sea, and of the *Good Hope* and *Monmouth,* in the Battle of the Pacific, because of their relative slowness, illustrates the revolutionary results of better types of engines and fuel. "If you can outsail and outshoot

your opponent, the battle is yours!" so runs the rule at present in vogue.

The development of the battle cruiser, which, like the dreadnought, is constantly growing in size and yet far surpasses it in speed, threatens to supersede even the superdreadnought. Captain Hobson, among other naval experts, pins his faith to this new type of warship, and demands that we should add them to our navy with 40,000 tons' displacement and with a speed of 30 knots.

Even battle-cruisers of the *Queen Elizabeth* type, of which Great Britain is now building five more,—with main batteries of eight 15-inch guns,—have a speed of 25 knots; and they are considered to have outclassed the *Oklahomas* and *Pennsylvanias,* with 14-inch guns and a speed of 21 knots.

As for the battleship of whatever type, there are experts who confidently declare that its era has passed away forever. What steam did to the sail, what the iron-clad did to the wooden hull, the submarine and airship have done to the battleship: made it a back number. Take, for example, the *Monitor,* that proud sovereign of the seas, which is credited with having turned the tide of war that was running against the Union a half-century ago, and revolutionized the art of naval warfare in its day. Many later and greatly improved monitors have been added since that time to our navy. But what are they now? They have not been utterly discarded, as yet; but they have been resuscitated to serve the submarines as traveling blacksmith shops and gasoline tanks!

Consider, again, the pre-dreadnought battleships, those supreme sea-kings of a short decade ago. We have 22 of them, but naval experts declare that 13 of these "belong about as much to the first line of battleships as a 2-cylinder car belongs to the first line of automobiles."

The super-dreadnought, too, which now wears the Monitor's crown as sovereign of the seas, is destined,—and that right soon,—to the limbo of the has-beens. One

school of critics and inventors declare that its knell has been sounded, and that it is already being replaced in Germany by the unsinkable ship. Such a ship, of the Gathmann type, is provided with a triple hull of steel, each of the three steel coats only three-fourths of an inch thick, but enclosing air-spaces of 40 and 30 inches between them. By so simple a device, it has been found possible to build warships that are unsinkable by mines, torpedoes or high explosive shells. The other school of critics of the battleship insist that the submarine will soon put it out of business. It appears that it is impossible to protect the hull of a battleship against the torpedoes or high explosive shells of the submarine. And this brings us to a new era in naval warfare, namely, warfare under the sea.

C. PREPAREDNESS UNDER THE SEA

Warfare on a large scale under the earth, under the sky, and under the sea, has been the preëminent characteristic of the present great struggle. Intrenchments, airships and submarines have filled the fields of battle, the newspapers, and the minds of non-combatants alike.

Submarine Boats

Of these, the submarine, while it may not have achieved more than the others, has been most prominent in the popular mind. It is natural, therefore, that all programmes of preparedness should stress this item strongly. The United States, particularly, claims to be a non-aggressive power, and looking at armaments from the point of view of defense regards the submarine as of highest value to it for defensive purposes; this value, it believes, is greatly enhanced because of the relatively long coastline.

But the "defensive" purpose for which the submarine has proved its value during this war is not only that of defending a coast line against attack,—as in the

case of the German and Belgian coasts and the Dardanelles,—but also of defending battleships against battleships, and of attacking merchantmen, transports, seaports, and even battleships themselves.

Their defense of battleships was illustrated in the Battle of Heligoland Bight, when five British battle cruisers pursued four German battle cruisers and sunk one of them, the *Bluecher,* but turned back from the pursuit of the others because of the danger of submarines. In the words of the victorious British Admiral: "The presence of the enemy's submarines subsequently [after the sinking of the *Bluecher*] necessitated the action being broken off." Thus a squadron of the most formidable capital ships, running at high speed and accompanied by torpedo boat destroyers, was checked by the appearance, —planned beforehand or summoned during the pursuit,— of a line of submarines. If the German Admiral had been accompanied by submarines at the beginning of his raid on the English coast, the question may well be raised as to the success of his attempted invasion.

The attack of German submarines upon belligerent and contraband-carrying merchantmen was for many weeks one of the spectacular and significant features of the present war.

The proclamation by the Germans of "a war zone" around the British Isles, and the activity of their submarines within that zone, are but too familiar to Americans and other neutrals, as well as to the British and French. The sinking of the 4-funneled, 32,000-ton *Lusitania,* one of the largest of ocean greyhounds and the loss of more than 1,000 of its passengers, has shown in most dramatic and terrible fashion the effectiveness of the submarine as against merchantmen. In every week during the first year of the war, with the exception of two, the German submarines, mines or cruisers inflicted some loss on British shipping. Within six weeks, 43 ships were sunk in the "war zone"; in one week, 19 British ships, of

a total tonnage of 76,000, fell victims to German submarines; in two days, 14 steamers of 47,698 tons, were sunk by them. Within twenty-four hours, a single submarine, the U-29, in a raid in the English Channel, torpedoed seven steamers, sinking five of them and badly injuring two.

Great Britain has a merchant fleet of about 40,000 ships, and builds each year more than all the rest of the world put together. Hence, it is a long, long way that the German submarine must travel before it can attain its goal of destroying or seriously injuring Great Britain's over-seas commerce. Since the yielding of Germany to the demands of the United States in regard to the protection of neutral lives and property, there has been a lull in the submarine activity. The British insist, of course, that this is due to an acknowledged failure of the submarine campaign; but Great Britain, with its enormous vulnerability in merchantmen and warships, has feared and affected to despise the submarine from its very inception. It seems entirely possible that Admiral von Tirpitz, while forced to yield on the question of neutral lives, is strenuously utilizing German efficiency in the development and construction of his beloved submarines, and will yet launch an attack overpowering in its intensity upon both merchantman and warship.

Meanwhile, in recent weeks, the British submarines have found their way into the Baltic, and are making havoc among the German merchant-ships which carry trade to and from Scandinavia, and supplies and recruits to Russia. Within a period of twelve days, these submarines have sunk 20 German ships, aggregating a tonnage of 38,000.

Meanwhile, also, the German people remain confident of the ultimate success of the "submarine net around the British Isles." The "toll of our tireless U-boats," they insist, "has amounted to more than $1,000,000 per week"; and they declare that the British censor has not

permitted half the truth about British losses to be known. These losses, they say, include many small fishing smacks, of no great value in themselves, but of very great importance in protecting Britain's coasts, giving warning, as they do, by means of their wireless outfit, of the submarines' approach.

One of the chief aims of the German submarine is the sinking of British troop-ships. Two millions of soldiers have been transported by them, many of these crossing the Atlantic and Pacific Oceans. So well guarded in every possible way are these troop-ships, however, that thus far only one of them is known to have fallen a victim. The sinking of the *Royal Edward,* by a submarine in the Aegean Sea, on August 14, 1915, caused the loss of more than 1,000 men, and proved the vulnerability of both the Mediterranean Route and the troop-ship.

On that same ominous day, also, occurred another evidence of the submarines' power, when three English towns, Whitehouse, Harrington and Parton, on the Irish Sea, near Solway Firth, were bombarded by them. Thus not only the airship, but the submarine as well, has broken the charmed ring around the British Isles.

Dreadnoughts and battle cruisers have not *yet* been attacked or sunk by the submarine; but the possibility of their being mastered by it has been brought near to certainty by the retreat of the five British battle cruisers mentioned above;[1] and already armored cruisers and even pre-dreadnought battleships have fallen a prey to it on several occasions. The French armored cruiser *Leon Gambetta* of 12,416 tons' displacement, was sunk by the Austrian submarine, *U-5,* of 273 tons' displacement. The British armored cruisers, the *Hogue, Cressy* and *Aboukir,* each of 12,000 tons' displacement and a speed of 22 knots, were sunk at one time by the *U-9,* which soon afterwards sunk the *Hawke* of 7,350 tons and 19 knots; and the British battleship *Formidable,* of 15,000 tons and 18 knots, was torpedoed and sunk by a German submarine,

[1] See page 198.

probably the *U-21*, of 800 tons and 17 knots. In the Sea of Marmora, up to October 26, 1915, the British premier stated, the British submarines had sunk or damaged 2 battleships, 5 gunboats, 1 torpedo boat, 8 transports and 197 supply ships.

The British battleships, *Ocean* and *Irresistible,* of 13,000 and 15,000 tons, and 18.5 and 18 knots, respectively, and the French battleship, *Bouvet,* of 12,000 tons and 18 knots, were sunk in the Dardanelles; these, too, have been claimed as prey of the submarine although the British and French Admiralties insist that they were blown up by floating mines. From the Baltic, also, come conflicting reports of the sinking of German cruisers and pre-dreadnoughts by British submarines.

Submarine Battleships

The rapid development of the submarine during the war has been as astounding as its fighting effectiveness. When the war began, Germany's submarines had an effective cruising radius, on the surface of the sea, of less than 1,000 miles. After six months of war, their exploits proved that this radius had been increased to 3,000 miles. So astonishing were the distances made by them from their base of fuel supply, that the wild theory arose that " the Germans have under-water deposits of fuel oil cached about the coast of Great Britain, from which the browsing submarines replenish their tanks." " The latest " type is now said to possess a cruising radius of 6,000 miles; and one of this type made its way, with its original supply of fuel, from Wilhelmshaven to Constantinople. When this latter feat was accomplished, the *Neueste Nachrichten,* of Munich, pointed out the fact that the distance from Bremen to New York is 3,600 miles, and expressed " the hope that this submarine exploit will make the war party in the United States think twice."

Meanwhile, the experts in our own country are en-

deavoring to respond to this warning with another equally impressive. During this summer, the Lake Torpedo Boat Co., of Bridgeport, Connecticut, tested their new submarine *G-3*, and declared that it can cross the Atlantic Ocean, sink an enemy's ship, and return to the American coast, without dependence on any base of supplies other than the home-base.

Again, the submarine which required, a few years ago, twenty minutes to sink below the surface, can now do so in less than three. Its speed has been increased, on the surface, from 10 knots to *22*, and under the surface from 5 knots to 16. A greater increase of speed is requisite in the submarine before it can keep pace with or overtake a warship of the battle cruiser type. But because of its diminutive size, and its ability to conceal beneath the water everything but its periscope, it can not be detected by a warship, under normal circumstances, at more than five miles' distance; and since it can see a warship at a distance of ten miles, it can creep up with impunity upon a prey of even the largest type and greatest speed.

Even when its intended victim is surrounded by fields of mines, it can sink beneath them, and even beneath torpedo nets, and then rising beneath the ship at anchor or under slow speed can attach to it a mine that can be exploded by an electric time-fuse when the submarine has made good its escape. The exploit of a British submarine in diving under five rows of mines and torpedoing a Turkish warship is a striking example of this kind of submarine warfare. It is even possible for a single submarine to attach bombs to a row of warships in turn, and then blow them up all at once; or to launch its torpedoes into each of them in turn. The German *U-9* showed the success of this, when it sank in the North Sea at one time the British armored cruisers, the *Hogue, Cressy* and *Aboukir*, each of 12,000 tons' displacement and a speed of 22 knots; and followed this achievement

by sinking the protected cruiser, the *Hawke,* of 7,350 tons and 19 knots.

Admiral Dewey says of the effectiveness of submarines against battleships, " From what I have seen of the work of the submarines, it is my belief that I could not have held that bay [Manila] with my squadron of fifteen ships if the enemy had had two of these boats with determined operators on board. We should have had to be constantly on the watch, never knowing when the blow would fall. The human frame could not have stood it."

With the development of an Edison undersea battery, making possible a submersion of 100 days and an undersurface cruising-range of 150 miles, the submarine is expected to increase enormously its capacity for terrorizing and wearing down the crews of enemy ships. But it has already earned the name of " super-submarine," or " undersea battleship," or " submarine dreadnought," by its recent extraordinary increase in size and fighting capabilities. Take Germany's recent experience, for example. Six years ago, it had only four small submarine boats, the *U-1* to *U-4,* designed merely for coast defense, and very feeble even for that purpose. Within the next year, 1909-10, it built eight, the *U-5* to *U-12,* with 300 tons' displacement and a speed of 13 knots on the surface and 9 knots under it. During the four years preceding the war, it built fifteen, the *U-13 to U-27,* with a displacement of 900 tons and a speed of 17 and 12 knots. In these years of war, 1914-16, no one outside of Germany knows what further progress has been made; but the exploits of the *U-29* have given the rest of the world stimulating food for imagination as to what it must have been.

At the beginning of our quarrel with Germany, Admiral von Tirpitz declared that his submarines were so fragile and slow as compared with the ocean liners, that it was impossible for them either to hail their intended victim and compel it to submit to search for non-contra-

band cargo and neutral passengers, or to afford an opportunity for passengers and crew to take to the boats. The arrival of destroyers, or the use of guns by the merchantmen, or even a resort to ramming, would make this impossible, he claimed. Germany's yielding to neutral demands, as championed by the United States, is shrewdly suspected to have been due in large part to its confidence in its ability to make the submarine superior to even the armed merchantmen by converting submarine boats into submarine battleships. Some of its latest submarines like the *U-21*, have been given a displacement of 800 tons, a speed of 18 knots on the surface and 12 when submerged; a capability of sinking to a depth of 150 feet; an armament of four torpedo-tubes and two 3-inch, 14-pounder, quick-firing guns; and an armor of Krupp plating. The world has already received a hint of what these guns can accomplish from the shelling of the *Armenian* and the *Anglo-Californian.*

What further developments in these directions Germany's most recent submarines have attained, only they who live will see. Meanwhile, American inventors and constructors have been stimulated by German achievements to push on in the same direction, and if possible to surpass them. The three submarines of the L-type, authorized by Congress at its last session, are to have a displacement of 450 tons, and a speed of 14 knots on the surface and 11 knots submerged; they are also to be equipped, in addition to having the usual tubes for the launching of torpedoes, with a battery of 3-inch guns. These guns, with an effective range of 2½ to 3 miles, together with the submarines' speed of 14 knots, will make the boats or ships of this class miniature cruisers, which no merchant-ship could defy or ignore. But another class of submarines is already projected, namely, those of the M-type, which are to be larger, faster and heavier armed. These are to have 600 tons' displacement, a speed on the surface of from 20 to 23 knots, and

a battery of 6-inch guns. Their guns are to be of the disappearing type, automatically sinking into the hull after each discharge. When the new invention which obviates the necessity of showing their periscopes above the water, is applied to submarines, as is said to be the case with the U. S. submarine *Schley,* they will be enabled to remain entirely submerged and at the same time discover and attack their enemy on the surface. And when the next logical step is taken of enabling the submarine to *see* under the water, we may confidently expect to have *only* underwater battleships and underwater naval fights.

It was in view of such possible developments as these that a British admiral and expert naval constructor, Sir Percy Scott, was led to declare in June, 1914, that money spent on dreadnoughts is just so much money thrown into the sea, for submarines would surely antiquate battleships. Nine months later, after seven months of the present war, another naval expert, who invented and constructed a type of submarine now used in Europe, declared in a lecture delivered before the Society of Civil Engineers in Paris, that submarines would drive battleships from the sea, as surely as railroads have banished stages-coaches, and trolley-cars replaced horse-cars.

The Kaiser took the British Admiral's prophecy so seriously that he largely increased the German programme for submarines for the year 1914. Our own Secretary of the Navy, in the light of the present war, has declared: "The main defense of the United States in the wars of the future will be the aëroplane and the submarine. . . . Men who formerly were regarded as unreasonable enthusiasts for submarines find themselves in every sense justified by what already has occurred abroad."

One of these "unreasonable enthusiasts," who possesses also some scientific claims to a hearing, declares: "The future history of the world will be far different from what it would otherwise have been, because of the

submarine. The mastership of the seas has passed from every nation. Defence is made perfectly practicable against overseas expeditions everywhere. Japan and Great Britain are forever safe from invasion once their submarine forces are developed; but they are capable of being starved by their enemies. We of continental situation are in better case than ever before as against transmarine foes, actual or potential. . . . The submarine gives us only two possible enemies with whom we can wage war,—Canada and Mexico. . . . It carries out all over the seas a stalemate as complete as that which exists in the trenches in France; a stalemate in which real battles are impossible, in which destructive war on commerce is raised to the *n*th power, and in which world intercourse must be based on peace, or in so far abandoned as to make the very existence of the insular commercial nations hazardous." This counsellor, accordingly, admonishes us to aim at becoming *invulnerable* rather than *invincible;* to defend ourselves by many submarines, rather than to menace other nations by a small number of battleships.

How Many Do We Need?

Our conservative Naval Board is evidently far from sure of what constitutes now, or will constitute in the near future, either invulnerability or invincibility; and it accordingly attempts to provide for all possible contingencies by urging, in the new programme of preparedness, not only 76 battleships of the five kinds described, but also 15 fleet, or sea-going, submarines and 85 coast submarines. This programme would give us about 110 "up-to-date" submarines; for although we had about 46 before the 10 new ones now building were authorized, almost all of these are utterly defective or antiquated. Commander Yates Stirling, in command of the Atlantic flotilla of submarines, testified before a congressional committee last winter that, through lack of proper upkeep,

the efficiency of his flotilla had so far deteriorated that it contained only one submarine capable of remaining submerged with safety for more than fifteen minutes! The submarines in the Pacific flotilla are apparently in as bad condition, to judge of them by the four boats of the F-type which are located there. One of this type, the *F-4*, dove last Spring in the harbor of Honolulu and did not come up again. Its crew of twenty men was lost; it was not recovered until after five months of effort and the expenditure of $20,000; and it had cost, three years before, a half-million dollars. After investigation, a report of the experts has condemned as dangerous and useless the other three boats of its type.

In view of such experiences, even more conservatism in regard to submarines, on the part of the Naval Board, would be highly commendable. Their experimental stage; their rapid changes in type; and their increase in size, speed and armament, all make them a wholly unknown and almost incalculable factor in warfare. The only thing entirely definite about them is their increasing cost. The sea-going type at present building cost about $1,000,000; the 15 additional ones to be built by 1921 are estimated at present to cost 50 per cent. more. The coast-defense type just contracted for average less than $550,000; the 85 new ones to be built by 1921 are estimated now to cost $100,000 more per boat! There is every reason to expect a still greater increase in price during the next five years; but, accepting the present estimates, we are asked to invest $77,750,000 in 100 new submarines, —not to mention the cost of maintenance,—which may quite probably be antiquated by the time we have bought and paid for them.

Even in point of mere numbers, our 110 "up-to-date" submarines are not overwhelmingly impressive and reassuring, in view of the immense coast-line which they are supposed to defend, and in view of the "enemy" submarines with which they are supposed to compete. For

example, Great Britain was credited with 84, at the beginning of this war; France, 76; and Germany, 54. The "Almanach de Gotha" gave Germany 72 at the beginning of 1915; but what it, or Great Britain, or Japan, has now, or will have at the end of the war, only the wildest of imaginations would undertake to hazard a guess.

Submarine Mines and Torpedoes

The Russo-Japanese War of 1905-06 first brought into great prominence the use of submarine mines in naval warfare. During that war, the Russians and Japanese sowed floating and anchored mines in the high seas, as well as within the territorial waters of China and Japan. These mines caused much destruction to life and shipping, both warlike and mercantile, during the war; and for several years afterwards, scores of ships and boats and hundreds of lives were destroyed by these "demons of the sea." A strenuous effort was made at the Second Hague Conference to curb the use of both anchored and unanchored, or floating, mines. But in the present war, this restraint has been flung aside, and almost unrestricted use is being made of both kinds and in many waters. German mines, for example, have been sowed by merchantmen, masquerading as neutrals, or by submarines, throughout British waters, in the Adriatic, Mediterranean, Aegean and North Seas, and even on the northern coasts of Norway and Russia. Russian and other steamships have been obliged to wait for a week at a time in Archangel Channel, while trawlers swept the channel clear of floating and cabled mines. Maximilian Harden, in a lecture in Berlin last Spring, prophesied that, "as soon as we have succeeded in extending the radius of action of the four large submarine types, they can be used for the lavish laying of mines; then, on a certain morning the Island Kingdom will find itself surrounded by a new circle of mines, and its mastership of the sea will be at an end." This prophecy has not yet

been realized, as far as the final result is concerned; but many mines have been sown, and they have done large damage to shipping in the North Sea, the English Channel, and elsewhere. The naval experts of the *London Times,* the *Daily News* and the *Daily Chronicle,* have been warning England of the imminent and fatal danger of the submarine torpedo and the mine; and many incidents have furnished points to their warning. The sinking of the *Pathfinder* and *Malachite* by portable mines, attached by the submarine *U-21,* and with fuses so placed as to blow holes below the water line, are two such incidents out of many. The sinking of the British battleships, *Irresistible* and *Ocean,* and the French battleship *Bouvet,* in the Dardanelles, is admitted by the British and French admiralties to have been caused by floating mines, while the Turkish government claims it to have been caused by automobile torpedoes.

To the menace of the mine and automobile torpedo, has been added the incalculable terror of the "wireless" torpedo, which has been developed during the present war. This torpedo is so devised that its direction, speed and submergence can be controlled from the shore or from shipboard, by means of wireless apparatus, even at a distance, it is said, of ten or twelve miles. It is equipped with masts that rise and fall like plunger elevators, and thus evade the enemy's fire; with "eyes" of silenium plate that follow obediently the rays of light directed into them; and with automatic engines, steering-gear and weapons. The "age of machinery," in warfare as in everything else, is surely upon us. With wireless plants controlling the action of crewless ships and aëroplanes, it is believed that "no battleship or other vessel of an enemy could even get within the zone of action of these steel automatic craft, without incurring a risk of annihilation amounting almost to certainty."

Recognizing the value of mines for defensive purposes, the United States has planted mine fields on various parts

of the coast, around the entrance to the Panama Canal, and around Pearl Islands in the Pacific. The United States Marine Corps have conducted experiments in Philadelphia which show that within two hours a mining company can assemble and plant 20 mines, weighing from 350 to 800 pounds; and that within 24 hours it could plant 300 mines, and thus give to the city the control of Delaware Bay, so far as the passage of ships is concerned.

For the laying of mines at sea, we are said to be very poorly provided. Rear-Admiral Fiske testified last December before the House Committee on Naval Affairs that our navy has only one mine-layer, the *San Francisco,* capable of laying 330 mines, but that we expect to have an additional one in two or three months. Germany, at the beginning of the war, had five regular mine-layers, and during the war has equipped submarines for the same service.

In torpedoes, also, we are said to be badly off. A few months ago, we had only 355 on hand,—about enough to supply one to each tube in the navy, whereas, experts tell us, we should have *scores* for each tube. Aside from a wholly insufficient supply, our torpedoes for battleship use are said to be obsolete. Rear-Admiral Straus testified that all battleships in commission now, or which will be in commission before the *Nevada* and the *Oklahoma* are completed, are equipped with a short-range torpedo which may be considered obsolete for the battle fleet.

Anti-Submarine Devices

The enthusiasts over mines and torpedoes naturally insist that if we are really preparing for defense, we should lay chief stress on mines and torpedoes, the two agencies that have been most prominent in naval warfare this year, and not squander millions on obsolete or obsolescent battleships for use above the water. But the battleship enthusiasts, while admitting the great power of submarine

mines and torpedoes, point to the curbing of that power by numerous and varied devices. Among these may be mentioned the use of England's great fleet of fishing-boats, more than 2,000 of which have been equipped with wireless outfit for reporting the presence of submarines, or even for ramming them, and for trawling or dredging for mines. Many a German submarine boat is believed to have missed its intended prey through timely warning by British fishing-smacks, though many of the latter have themselves fallen victims. Mine-fields, too, have been uprooted, and at least one German submarine, the *U-14,* has been rammed and sunk by them. Hundreds of trawlers are constantly dragging the waters around the British Isles and France in search of mines, floating singly or in fields; and all the British fleets are equipped with mine sweepers for the protection, primarily, of battleships. Not infrequently, the mine-sweepers themselves are blown up by the mines, as has been the case with a number of those accompanying the allied fleets to the Dardanelles.

The war has brought out new devices for trapping torpedoes and snaring submarines, as well as for removing mines. One torpedo-net has been perfected, which is held to be well worth its cost of $75,000, even though scores of them are necessary for the protection of warships, sailing singly or in fleets. The Secretary of the Navy includes in the new programme the sum of $480,000 for " torpedo defense nets for battleships." At $75,000 apiece, this large sum will not go very far.

To snare the subtle submarine, a net of steel wire has been invented, which is electrically connected with the shore, so that when a submarine strikes it and becomes entangled in it, a destroyer is summoned for its destruction. Another net,—an American invention,—is made of iron pipes, connected in air-tight sections, the intervening spaces filled with wire or rope mesh, and reënforced by mines fastened in the mesh. The inventor of this net claims that the British government is negotiating

for the laying of it to protect the transport of troops and supplies from England to the Continent; and he also claims that his net could be stretched at the rate of a mile a day from Long Island to the Jersey and Connecticut coasts, thus protecting New York harbor "at a cost ridicuously low compared with the cost of many modern war appliances."

Still another promising device is to fill the water near battleships or seaports with circular wire nooses, each supplied with eight trailing ropes, 150 feet in length, which become entangled in the submarine's propellers, as soon as it thrusts its nose into the noose. This snare is equipped also with a hemispherical buoy or float, in which there is a signal-flare that burns upon the surface of the water as soon as the submarine is caught, and thus summons a destroyer to the attack.

These devices are based on the principle that the easiest way to catch a fish is to net him and not to swim after him. But the British, in their struggle with the German submarines, are said to have developed the sport of Izaak Walton into a popular chase of undersea boats. A numerous fleet of small electric or gasoline motor boats,—automobile boats,—have been built, and equipped with small guns; these are said to be too swift to become the prey of submarines and, armed adequately to deal with them, and stationed at distances of five miles apart, are successfully patrolling Britain's shores. More than 50 German submarines are claimed by the British government to have been destroyed by one or more of these devices, although the German government has announced the loss of only 7, and declares that it now has more submarines than at the beginning of the submarine warfare.

The United States is preparing to imitate some at least of these methods of dealing with submarines, and the Navy Department is coöperating with the Waterway League of New York, whose members possess 500 swift motor boats. A United States destroyer participated in

the maneuvers of these "auxiliaries of the navy" last summer, on Jamaica Bay. Chicago, not to be outdone by New York, has mobilized its local fleet of 200 power-boats, and demanded of the navy a submarine to practise with and on, and of the government an enrollment of 300,000 men and officers to be trained in the use of rapid-fire guns, torpedo tubes, wireless and other signalling equipment. This movement to organize "a reserve scout fleet" on the Great Lakes may find an obstacle in the Rush-Bagot Agreement of 1817, which forbids the presence on the Lakes of armed ships of more than a total displacement of 400 tons. Submarine detectors, consisting of microphones which the propellers of submarines and warships cause to vibrate and thus to transmit a warning signal to the shore, are now being successfully tested in Long Island Sound.

An American college professor, also, has developed a plan for the construction of miniature submarines, so small that one man can operate them. He advocates building a large flock or swarm of these for every port, and turning them loose upon hostile submarines, to "sting them to death." The difficulty with this device at present is that the submarine, large or small, while it has proved itself capable of fighting all other kinds of watercraft, cannot fight others of its kind. Its "eyes" have not yet been developed so that it can see other submarines under water; hence a swarm of small "jitney" submarines would be more likely to sting each other to death than their less numerous foe.

The aëroplane, however, from its exalted position, can obtain a bird's-eye view of submarines even when submerged to a depth of 150 feet; and the aëroplane has already been used against the submarine with success. For example, British aviators have bombarded seaports in Belgium, destroying a hangar, a dirigible airship, and two submarines; this feat was accomplished by moonlight.

From this short study of a long array of preparedness,

and re-preparedness, and counter-preparedness, under the sea, it will be readily understood why the preparedness upon the surface is almost duplicated, though at present on a smaller scale, beneath the waves. It will be readily understood, also, why the whole science and art of naval warfare have been thrown into turmoil, and why, in the throes of a veritable revolution, no one is wise enough to forecast the future. Those who pretend to do so are not good pilots for our ship of state.

D. SPEED, FUEL AND ENGINES

While two rival schools of naval experts are developing as rapidly as possible the building of overwater and underwater craft, a third school is devoting itself to the increase in the speed of water craft of all kinds. This school is chiefly concerned with the questions of fuel and engines.

In the olden times, when the wind or human muscle were alone available, the problem of "fuel" was simple and easy. But when steam, gasoline, heavy oils and electricity are at man's command, the problem is complex and difficult. The substitution of oils for coal, as fuel, had begun before the present war; and it was soon found that this substitution had changed the whole problem of coaling-stations and naval bases, had given ships of all kinds a far greater cruising radius, and had saved space for the installation of more and heavier guns. The use of oils by destroyers, too, has developed the possibility of producing thick volumes of smoke, extending for 100 miles in front of a fleet, behind which, as behind a screen or protecting blanket, escape from submarines or superior warships may be effected, or as from behind an ambush, the larger ships may dash to the attack.

Electricity as a motive-power has many advantages over both coal and oils; but the main difficulty with it lies in its generation. The use of lead batteries in submarines, for example, is quite general throughout the

world; but it has been found that salt water leaking into the batteries generates sufficient quantities of chlorine gas to kill the crew. This appears to have been the case with the *F-4* of the United States, and with one or more of the submarines of France. The United States led the way in equipping the first collier, the *Jupiter,* with electric propulsion; and it is experimenting with the electric drive for its new battleship, the *California.* The electric engine for the latter is $200,000 cheaper than would be a steam turbine installation. Mr. Edison has developed a nickel submarine battery, which is said to prevent all danger of chlorine, sulphuric and carbonic gases; to give to a submarine a submerged cruising-range of 150 miles; and to enable a submerged crew to live for 100 days!

The Diesel, Campbell, Mietz and Heiss, and other oil engines are competing with the older gas engines and the newer petrol engines, with varying and, as yet, indecisive results. The French submarines, for example, have run the circuit of steam, petrol, heavy oil and steam; the Diesel heavy oil engine has been discarded in them during the present war, it is said, and a return made to steam. On the other hand, one type of submarines now being constructed by the United States is being fitted with a Swiss engine, which burns heavy oil, and which drives both on the surface and under water, so that the former double engine,—one for gasoline on the surface, the other for electricity under the surface,—is discarded in this type. This latter engine is said to be so efficient that "the tiny *G-3* can carry enough fuel to cross the Atlantic twice without stopping for a new supply."

Evidently, in the use of engines and fuel in warships, as in every other item of the military and naval programme, there is raging a great struggle for existence, and no man can yet say which is the fittest to survive. The whole world is in the stage of experimentation; and experiment is both very costly and wholly uncertain.

E. ARMOR, EXPLOSIVES AND PROJECTILES

Their Endless Competition

In another great department of naval warfare, there is an eternal rivalry between the conflicting elements of defense and attack, namely, armor plate, on the one side, and explosives and projectiles on the other. Especially since the iron-clad *Virginia,* or *Merrimac,* sunk three wooden frigates in Hampton Roads, a half century ago, and the iron-clad *Monitor,* with its revolving turret, put the *Merrimac* out of the fighting, this contest between armor and missile has been constant and exceptionally bitter, but with no sign of ending.

" Protected cruisers " have been eclipsed by " armored cruisers," and " armored cruisers " by " battle cruisers," and " battle cruisers " by " battleships," and " battleships " by " dreadnoughts," and " dreadnoughts " by " superdreadnoughts."

Cast-iron *round* shot gave way to *elongated* projectiles for rifled guns, *solid* shot has been followed by *case shot,* and case shot by *common shell,* and common shell by *shrapnel shell,* and shrapnel shell by *palliser shell.* The whole world at present seems to have gone mad over shells,—one-half to procure and use them, the other half to manufacture and sell them.

To meet this development in shells, ship-builders have called every resource into use in the protection of hulls. *Wooden* hulls gave place to *wrought iron,* and wrought iron to *steel;* the iron hulls were sheathed in *wrought iron plates;* these were discarded for *compound* plates; *harveyized* steel, and alloys of *nickel-chrome, molybdenum* and *vanadium,* followed in quick succession.

The attacking party met this challenge by substituting steel for iron guns, and rifled-bores for smooth-bores; and by supplying them with Whitehead fish torpedoes.

The defending party countered by increasing the thickness of iron armor from 4⅜ inches, in 1855, to 5½ inches

in 1861, to 7 inches in 1867, to 24 inches in 1873. When compound plates succeeded, the thickness could be reduced to 16 inches, in 1874, but soon increased to 18 inches in 1880. Harveyized plates and Krupp's nickel-chromium-steel combination again enabled the armor to be reduced to 9.5 inches; but it has again increased to 15 inches.

The rifled guns had done for the earlier kinds of armor, but to meet the new increase in quality and thickness, the guns were enlarged from 7-inch to 9-inch, in 1867, to 12-inch in 1900, to 13.5-inch, in 1910, to 14-inch in 1914, and this year to 16 inches! At the same time, their calibre was increased from 40 to 45 to 50. But the new kinds of armor were very "tough customers," and the increasing size of guns alone was not sufficient to overcome them. The weight of shells was increased from 100 pounds to 380 pounds, to 850 pounds, to 1,675 pounds, to 1,950 pounds; and the explosives with which they were propelled and charged gave rise to a whole tribe of chemical ishmaelites: Dynamite was born in 1864, and amberite, axite, balistite, bavarite, bobbinite, carmonite, cheddite, cordite, dahmenite, donarite, duplexite, ecrasite, electronite. fractorite, hellhoffite, jahnite, kinetite, lyddite, melinite, oxonite, panclastite, pembrite, pertite, petrolite, picrinite, potentite, progressite, rexite, roburite, romite, solenite, thunderite, titanite, turpinite, vigorite and westfalite, have almost exhausted the alphabet for names, and have filled warfare with the fumes and furies which help to make Sherman's definition of it entirely correct. Nitrates, chlorates, chromates and picrates have made the fulminates vie with the hittites and the chemical ishmaelites above-mentioned. Gunpowder has been outclassed by gun-cotton; picric acid has excelled gun-cotton; and nitroglycerin has spelled terror with a big "T."

Sir James Thompson, in his Romanes Lecture at Oxford in July, 1914, announced the possibility of harness-

ing atomic energy to the uses of man by causing a single electron to ooze from an electric light wire, which, although it is the mildest form of atomic energy, generates enough power to run the *Mauretania* across the Atlantic. Thus the present war may realize the novelist's dream of "atomic bombs," one of which can destroy a city. An American inventor has just announced the development of a chemical compound which "can melt the thickest armor-plate and pass through a battleship or a fort like hot lead through butter." A report has come from Paris of the invention of a *poudre turpin* which, upon explosion, "asphyxiates every living thing for a mile around." We do not hear much from Germany's laboratories; but its military necessity is doubtless the mother of many inventions which may verify the belief that they "will cause our most destructive weapons of to-day to seem as impotent as the cave-dweller's flint beside a 42-centimetre gun."

Meanwhile, even the 13.5-inch guns have a striking energy of 63,187 tons and penetrate a wrought iron plate 51 inches thick. Their effective range has been increased from 750 yards, Trafalgar's record, to 21,000 yards, the *Queen Elizabeth's* record at Constantinople, or from less than half a mile to more than eleven. Each of these modern guns, says a naval expert, "has a striking power nearly five times greater than that of the whole broadside of the largest line-of-battle ship of a century ago, through whose lofty wooden walls there grinned tier upon tier of smooth-bore cannon." A single broadside from a modern battleship runs to more than eight tons! It is but little wonder that the armor-makers are burning the midnight oil to overtake the makers of guns and explosives. And it has been ever thus. The mechanics and metallurgists first invent a kind of armor that is *absolutely impenetrable;* and the governments equip their ships with that kind of armor plate. Then the chemists and physicists sit up for a few nights, and they invent an explosive or projec-

tile that is *absolutely irresistible;* and all the ships are found to be back numbers.

Our "Absolute Unpreparedness"

We are told to-day in the United States that because of such recent and rapid developments, not a single one of our dreadnoughts, even those which have cost us from twelve to fifteen millions of dollars each, and which were supposed to be the last word in naval architecture, is adequately protected against the projectiles and explosives invented last! Mr. Louis Gathmann, inventor of the famous gun, tells us also that our navy is wholly lacking in effective projectiles. "Considered in relation to modern methods and instruments of warfare," he says, "our shells are a joke. Even the largest of them, provided for the great 14-inch guns on our newest dreadnoughts, carry no more than 60 pounds of high explosives. The 15-inch guns of the English battle cruiser, *Queen Elizabeth,* throw projectiles that contain 300 pounds of high explosives. . . A single well-aimed shot from one of her guns would be likely to drive in the whole side of the new-built *Pennsylvania,* armor and all,—and she runs 26 knots an hour, which is five knots faster than our swiftest battleship!" This critic accordingly advises that "the main batteries of our battleships be made of 18-inch guns,—four inches larger in calibre than the biggest rifles our newest dreadnoughts carry"; and that these guns should throw shells containing 500 pounds of high explosive. "With such weapons and projectiles," he concludes, "it would not be necessary to hit the most formidable enemy ship more than once. . . . The armor would be likely to be blown clear through the ship."

But the defect in such reasoning would appear to be that the ship carrying such guns would itself be liable to be struck before it could strike the enemy,—especially if that enemy were a submarine or a mine. Hence the need of better armor. And so goes on the endless and

futile struggle. It is futile because it is an attempt to make an irresistible force overcome an invincible obstacle; it is endless because it is the application to warfare of Twentieth Century science, and Twentieth Century science knows no end.

The Era of Scientists

The German, British and American navy departments have recognized the pre-eminence of science in present-day warfare, and have been "mobilizing brains." Thomas A. Edison told our Secretary of the Navy that "modern warfare has become a matter of chemistry, machinery and high explosives." The secretary believed him and appointed a new Naval Advisory Board of Invention and Development to be associated with a new Bureau of Invention and Development in the Navy Department. Mr. Edison and two representatives from each of eight leading scientific societies have been appointed members of the Advisory Board. Their duty is to develop new devices, to harness Twentieth Century science to preparedness; and they have gone to work mainly along the lines of submarines, aëroplanes and the protection of battleships. The Board unanimously recommended at its first meeting that the government should establish a large laboratory to be used for experiment and research. The estimated cost of the laboratory is $5,000,000, and the annual expenditure for operation is placed at from $2,500,000 to $3,000,000. The plan includes the location of the laboratory near a large city, and on tidewater, where the largest battleships can come to dock. The equipment is to include pattern and machine shops, brass and steel foundries, a marine railway, chemical, physical and electrical laboratories, a motion picture department and other conveniences which might be needed for the testing and development of new inventions or projects. It is proposed that a naval officer of exceptional experience shall be in charge, and that there shall be staffs of chemists

and physicists. All of its operations are to be carried on in absolute secrecy, and adequate guards to be provided for it.

This new departure has been hailed throughout the country with joyous acclaim; it has gone a long way towards restoring the waning popularity of the Secretary of the Navy; and it has caused confident expectation that the revolution it will inaugurate in our military preparedness will cause *us* to be "the grandest tiger in the jungle." But it may be recalled that both Germany and Great Britain have scientists, and have mobilized them for the development of naval warfare. It may also be suggested, that, even though materials and machinery be all-important, they must have men to use them; hence the personnel of the navy is not altogether insignificant.

F. NAVY PERSONNEL AND ORGANIZATION

The advocates of preparedness have urged the construction of warships of every kind to so large and successful an extent during the past fifteen years, that the material side of the navy has outgrown its personnel. Even naval officers themselves, who have urged on, and rejoiced in, the growing popular demand for more fighting machines, have become apprehensive because of the growing shortage of men to manage those machines.

Our Shortage of Officers and Men

Admiral Fletcher forwarded to the Secretary of the Navy last December detailed reports from the commanding officers of all the ships in the fleet, and they reported unanimously that the shortage of officers and men was so serious as to constitute an insurmountable handicap to the fleet's fighting efficiency. According to this testimony, the navy lacks by 10,000 the men fully to man all the ships existing even at present which ought to be commissioned upon the outbreak of war. Admiral Badger testified before the Naval Committee, at the same time,

that "to provide a proper complement for all vessels of the navy which could still be made useful, would require an additional force of 18,556 men and 933 line officers." Admiral Fiske testified that it would require three years to get the personnel up to a standard of efficiency necessary to enable it successfully to meet an effective enemy. Congressman Gardner assured the Congressional Committee that, "out of thirty completed battleships, twelve are unavailable without a long delay, because of our refusal to pay the bills for manning them. . . . I charge that our Navy is 18,000 men short, and a further shortage of 40,000 men is in sight. The General Board, which has actually made our plans, estimates the enlisted force of the Navy as between 30,000 and 50,000 men short for war."

This deficiency, it seems, is found in all ranks of the personnel, from the admiral down to the marine; and the deficiency appears to be in quality as well as in quantity. A distinguished member of the United States Senate declared on the floor of that august body that there are "a lot of men in command of the navy whom a former President of the United States once described to me as a lot of wheezy, onion-eyed, old, stuffed puddings."

How Can They Be Increased?

To do away with this undignified not to say dangerous condition, the present Secretary of the Navy plans to increase the number of eligible officers by persuading Congress to increase the number of midshipmen at Annapolis from 970, the present number, to 1,200, which is the capacity of the Naval Academy. It costs the government $12,000, on an average, for the education of each midshipman; on this basis, it would cost $6,000,000 a year to educate 1,200 midshipmen, or a total of $24,000,000 for the period of their four-year course. This increase of 230 midshipmen would make itself effective

four years after its adoption; and four years more would be required before the 933 additional which are said to be necessary *now* could be secured in the regular way.

If a large number of new ships are to be built during the next five years, the already large and constantly growing shortage in officers would appear to call for the establishment of another Academy, or the doubling of the present one, at an initial cost of, say, $12,000,000, and an annual maintenance of another $24,000,000.

As for the 18,000 or 19,000 more men who are said to be needed in the navy *at once,* it appears that an act of Congress has limited the number of enlisted men to 51,500. Last year, there were 88,900 applicants for enlistment, but this law prevented the enrollment of more than 18,948. Hence, to man our existing ships properly, according to the conservative estimate, we should have to raise the legal limit by 35 per cent.; and according to Mr. Gardner's estimate of the shortage "in sight" by 115 per cent. Even this latter estimate is endorsed by such naval experts as Mr. Robert W. Neeser and Mr. John Hays Hammond, Jr. Mr. Neeser declares that "it is murder to send out vessels as wofully unprepared" as ours would be, to engage the enemy's fleet. "Of 2,000 men," he continues, "manning the German ships defeated off the Falkland Islands by the British squadron, only 90 were saved. Does the nation wish to place its citizens in such jeopardy?" To prevent such a tragedy and "to man properly our existing ships," he insists that 70,000 men should be in the service. Mr. Hammond's verdict is that, "with every resource tapped, we are 30,000 men short in our navy. We have 1,900 officers of the line. We must have 1,400 more." The new programme provides for the addition of 11,500 men and 250 midshipmen.

The Lack of Training

But far more serious than deficiency in numbers, it appears, is lack of training. Admiral Dewey says on this

point: "It cannot be too often repeated that ships without a trained personnel to man and fight them are useless for the purposes of war. The training needed for the purpose is long and arduous, and cannot be done after the outbreak of war. This must have been provided for long previous to the beginning of hostilities; and any ship of the fleet found at the outbreak of war without provision having been made for its manning by officers and men trained for service can be counted as only a useless mass of steel whose existence leads to a false sense of security."

Mr. Hammond declares that it takes *ten years* to make a well trained officer, and pointedly inquires: "Who will insure us peace for that time?"

The Naval Reserve

To avoid maintaining in time of peace, at *American* prices, a number of naval officers and men equal to a large standing army, Congress passed at its last session the Naval Reserve Bill. This provides for the enrollment of "citizens of the United States who have been or may be entitled to be honorably discharged from the United States Navy after not less than a four-year enlistment, or after a term of enlistment during minority." All ex-sailors and marines enrolled in the Naval Reserve are paid from $12 to $100 per annum; and they are not required to perform active service in time of peace except at their own request. They are required to maintain a suitable uniform and to attend a quarterly muster for the purpose of inspection and signing the muster-roll, and for this they receive transportation expenses.

This measure was also greeted with acclaim as having rich promise of being both economical and effective; but it has not yet called forth so many recruits as it was expected to do. In the first six months after its passage, only 103 men entered the Naval Reserve. Only two of these, it is reported, came forward in New York City,—

our largest seaport. This is explained by the argument that "modern sea-fighting is a mechanic's job more than a sailorman's." But the Navy League is far from satisfied with the results of the experiment and is seeking to make it a success by securing an enlistment of 50,000 graduates of Annapolis, former warrant officers and non-commissioned officers, and former enlisted men.

Another form taken by the demand for a naval reserve is the plea of the Surgeon-General of the United States, who declares there is immediate necessity for 700 medical men, under 45 years of age, to act as a reserve force for the navy. He also urges that our 18 hospital ships, which are capable of caring for 100,000 sick and wounded sailors, should be provided with a reserve hospital corps of men of high type to act as nurses, these to be trained in the naval hospitals; and the training of 800 women nurses, who would be absolutely necessary in case of war, whereas a corps of only 120 is available at present.

The Naval Militia

For a number of years, a Naval Militia in the various States has been in existence, and it now numbers about 7,000 men. But there has been constant complaint of inefficiency and lack of training facilities in this militia; and frequent efforts have been made to improve it. The new law passed by Congress at its last session is expected to bring about more coöperation between the officers of the navy and of the militia, and to provide the latter with more training facilities. The Secretary of the Navy has included in the new programme the sum of $250,000 for the purchase and repair of ships for the use of the naval militia of Illinois and Minnesota, and a further sum of $60,737.33 for the naval militia as a whole.

The Volunteer Naval Reserve

Meanwhile, there has been formed, on private initiative, the United States Volunteer Naval Reserve, which is

expected to create a very large and efficient auxiliary naval force. All citizens between 18 and 45 years of age are eligible to membership, and they are expected to meet on Sunday afternoon, "on the water-front," and receive instructions in naval science and art at the hands of former naval men. The new organization is said to have appealed, very promptly and quite as a matter of course, to the United States government for "recognition," for use of government reservations, and for the occasional loan of a warship "for practice." It may be confidently anticipated that an appeal for "appropriations" will follow in due course.

The Professional Versus the Novice

In the building up of naval reserves and militia, we encounter the same lack of expert confidence in anything except "the professional" that we find in the army. Modern naval warfare is so exclusively the business of specialists that the seasoned "sea-dogs" cannot help despising "raw recruits" or "half-baked land-lubbers." The Von Tirpitzes and Fishers of our time stretch out both hands and arms for more men, more men; but they insist that it takes *years* to "lick them into shape."

Even lay critics, like Mr. Reuterdahl, call our attention to the fact that "the wastage in battle is enormous. One action might wipe out thousands of highly trained specialists: gunpointers, electricians, machinists. These places could not be filled at once, and our raw crews would meet the fate of Cradock's men, who, being reserves, were only half trained and could not stand up with spirit against the matured organization of the enemy."

How many professionals and reservists shall we have? Before the present war, Great Britain had 150,600, with 58,000 reserves; Germany, 79,200 with 110,000 reserves; Japan, 55,700 with 15,000 reserves; the United States, 66,273 with no reserves. Hence, to overtake our "possi-

ble enemies" as they were *before the war,* we should have to increase our naval personnel by 320 per cent., 280 per cent. and 10 per cent. respectively. How expensive this increase would be may be judged by the fact that the expenses of the British navy, per capita of personnel before the present war, was $1,080; of the German, $607; of the Japanese, $693; and of the United States, $1,970! Hence, at this rate, we should have to pay,—in order to *equal* the British, German and Japanese navy personnel, nearly twice as much per capita as Great Britain pays; more than three times as much as Germany pays; and nearly three times as much as Japan pays.

A Defective Naval Organization

Besides the deficiency in the number and training of our naval personnel, of which a host of critics complain, our naval organization is condemned as being far behind the times. "How for a century the navy has carried out its duties without a war staff is a marvel," says Mr. Neeser. "The creation of a war staff in England as a result of the Beresford Committee of 1909 removed that danger for our cousins. About the same time, the President appointed a commission whose report was strikingly similar to that of the Beresford Committee. It revealed a condition that astounded even the service. But it accomplished nothing. Congress refused to supply the remedy. Admiral Fiske also emphasizes this defect. "We have observed [in Europe]," he says, "the formation and wonderful work of the general staffs, but have provided no general staff or similar agency ourselves."

The only comfort that has come to our naval men along this line of organization is the recent creation of the office of chief of naval operations. But this appears to be but slight, cold comfort, and they complain that it should have been done "fifteen years ago."

Admiral Fiske, after detailing the great deficiency in numbers and training in our naval personnel, sums it

all up as follows: "We [naval officers] must make the laymen realize that the naval profession has developed greatly within the last ten years in Europe, because of the imminence of the awful war for which her navies strenuously prepared; while we of the United States, feeling secure behind the bulwark of the ocean, have not seriously prepared and have therefore dropped behind in the march of naval progress and have been, in fact, outstripped. We have seen the battle cruiser, the scout, the submarine, the airship, the aëroplane and the mine being developed by foreign nations into effective instruments of war, while their officers and men have been efficiently trained in their use and tactics; but we have not developed them into effective instruments of war ourselves, and therefore our officers and men have not been efficiently trained in their use and tactics. We have observed the formation of great organizations of highly trained reserves, but have gotten none ourselves worthy of the name."

G. WHAT IS "ADEQUATE" NAVAL PREPAREDNESS?

When an attempt is made to gather up the threads of naval preparedness in our day, they are found to be much tangled, to be mutually destructive, and to lead to no definite or satisfactory conclusion. The overwater craft and the underwater craft are like the proverbial Kilkenny cats that leave nothing of each other; the various types of overwater craft are continually treading each other under; and the various types of underwater craft are continually blowing each other up; while over all the aëroplane and airship soar, nullifying the usefulness of some and threatening the usefulness of all the rest.

The war of the war-machines has countless factors, and only a few of these may be pointed out here.

Overwater Craft

As regards overwater craft, it may be noted, first, that any navy is "inadequate," however numerous, large, bel-

ligerent and expensive its ships may be, if the enemy has a better one. Germany's navy, for example, which is said by the experts to be much better than ours, though it has cost far less, is cooped up in its harbor, does not dare to attack the British fleet and is much less effective than fortifications in protecting the German, Turkish and Belgian coasts.

On the other hand, Great Britain's fleet, mighty though it is, is unable to deliver an attack on the German or Belgian coasts and has failed in its attack on the Dardanelles. True, it has swept the German *commerce* from the sea, and has protected, for the most part, its own. How many battleships then shall we have? As many as Great Britain? If so we should infallibly repeat Germany's rivalry, and perhaps Germany's war with Great Britain. As many as Germany has? If so, we should have very largely to increase the recently proposed programme of 10 new battleships, at a cost of $188,000,000, for even according to this generous programme, we should have in 1921 only as many dreadnoughts, and fewer battle cruisers, than Germany had in 1914!

The "first-line battleships," which have increased threefold in size, and more than threefold in cost, within a quarter-century, are now trembling on the brink of "innocuous desuetude." The *pre-dreadnoughts* of 15 years ago have been eclipsed by the dreadnoughts of 10 years ago. The *dreadnoughts* of 10 years ago are outclassed by the superdreadnoughts of five years ago; and the *superdreadnoughts* of this year will be outclassed by those of next. The dreadnoughts of all kinds, in fact, are being surpassed in speed and fighting effectiveness by the *battle cruisers;* and they are in mortal terror of the *submarine.*

The submarine has also checked a squadron of victorious *battle cruisers* in full pursuit of their retreating foe; and this fact, as well as its being a hybrid,—not so fast as a scout cruiser, nor so powerful as a battleship,—

has already caused the battle cruiser to be condemned by many of the experts. Nevertheless, we are planning to build six of these before 1921, at a cost of $105,000,000, while Germany had 8, Great Britain 10, and Japan 4, in 1914!

Our eleven *armored cruisers* are already antiquated; we have built none since 1905, and our new programme provides for no more.

Our fourteen *scout-cruisers* are to be increased by 1921 to 24, according to the new programme, at a cost of $50,000,000; but even then we shall have only about one-half as many as Germany had, and one-fourth as many as Great Britain had, in 1914! Meanwhile, the aëroplane has already out-scouted the scout cruiser by about 1,000 per cent.!

The *torpedo boats,* which were hailed with such acclaim a dozen years ago, are as dead as a door-nail. We have not built any since 1900, and the new programme provides for no more.

The *destroyer* started its career in the destruction of torpedo boats, and has heretofore been called a torpedo boat destroyer; but now it has become, in name only, a destroyer, and in function principally a scout. But as a destroyer it is in immediate danger of being antiquated by the submarine; and as a scout, it is outclassed by the aëroplane. Nevertheless, our new programme proposes to add to our navy 50 destroyers at a cost of $68,000,000. Even then, in 1921, we should have 30 less than Germany, and 112 less than Great Britain, had in 1914!

Our four *coast defense* ships are antiquated; we have built none since 1899, and the new programme provides for no more.

As to *naval auxiliaries,* Great Britain has 5,000 in use. According to Admiral Fiske, we have "an inadequate merchant marine from which to get auxiliaries." The American consul at Cardiff, Wales, reported last March, six or seven months after the beginning of the war, that

the British had taken over 1,500 merchantmen, aggregating 3,500,000 tons, for the purpose of transporting and supplying armies in the field. During the Spanish War,—a tempest in a tea-pot,—our War Department chartered 57 ships as transports, at exorbitant prices, and 21 of these were procured from foreigners. The Board of Inspection of the Navy Department is now making a survey of the American merchant marine; and the Secretary of the Treasury advocates subsidizing, if necessary, a trans-pacific line to be used in case of military necessity. How far we should have to go along this relatively unimportant line,—as far as the actual fighting is concerned,—may be estimated from the fact that it would require 1,000 ships to transport 350,000 soldiers and their equipment across the ocean. Count Okuma estimates that 2,000,000 tons of shipping is requisite for the transportation of 400,000 soldiers. Japan's entire commercial fleet aggregates 1,000,000 tons. How many available tons should we have, in case of war, for transports, foodships, ammunition ships, hospital ships, repair ships, colliers, oil ships, fire fighters, floating docks, etc., etc.? The new programme provides for *six* of these ships at a cost of about $10,000,000!

Underwater Craft

Turning to "adequate" preparedness under the water, we find a similar unknown and constantly changing set of factors for the solution of the problem.

The submarine has increased in size from 300 tons to 900 tons' displacement; in radius, from 1,000 to 6,000 miles; in speed, from 10 to 22 knots, above water, and from 5 to 11 knots, under the surface; and in armament, from one torpedo and no guns, to 8 torpedoes and 3-inch and 6-inch guns. It is used for the defense of seacoasts, harbors, battleships and for attacks upon merchantmen, harbors, transports and battleships. It can even dive under submarine mines, in its attacks upon its prey. So

revolutionary has it already become,—within a mere span of time,—that it has effected a stalemate in warfare on the sea as complete as is the warfare in the trenches, and has challenged the mastery of the sea by even the proudest fleet that plows the waves.

We are planning to increase our number of varied but inefficient submarines by adding, within the next five years, 15 fleet and 85 coast submarines, at a cost of about $78,000,000. We should even then lag behind what Great Britain and Germany have now.

Submarine mines, anchored and floating; *wireless torpedoes,* fired from crewless boats and crewless aëroplanes, from distant points on shore or on the ocean: these are two more of the many known and secret devices used in our day for the destruction of battleships, and the nullification or complete transformation of all the old familiar means of attack and defense. While to counteract these, or to revolutionize them in their turn, *aëroplanes, "jitney submarines," motor-boats,* and a host of *nets* and *traps,* are being launched upon the market and the sea.

How many of these shall we invest in, to make our armaments really "adequate"? How much equipment of this kind do we require? The new programme provides $480,000 "for torpedo defense nets." How far would this go towards really "adequate" armament? Can any man say what *is* really adequate armament? Within a year after the beginning of the present war, the British Admiralty received more than 32,000 "new ideas," and is working on some of these which, it is freely predicted, will make the submarine of to-day as innocuous as a goldfish, and a superdreadnought as helpless as a jellyfish. The rapid trend of naval science appears to be away from size and towards the maximum of force in the minimum of space. Thus is recalled the old-fashioned *reductio ad absurdum:*

> As naturalists observe, a flea
> Has smaller fleas that on him prey;

And these have smaller still to bite 'em;
And so proceed, ad infinitum.

Speed; Guns, Projectiles, Explosives; Armor

For both overwater and underwater craft, a constant revolution is in progress in the development of new kinds of *fuel and engines. Speed,* SPEED, SPEED, is the incessant demand; and scientists of many kinds are doing their marvellous best to satisfy this demand for land vehicles, watercraft, submarines and aëroplanes. Victory goes to the fastest and the hardest hitter. Hence, vying with the speed-makers are the manufacturers of guns, projectiles and explosives; and these in turn are breathlessly pursued by the makers of armor.

Guns have grown in range from less than one-half mile to more than eleven miles, and in size from 7-inch to 16-inch, which last are *now* "the heaviest ever"; their material, too, is constantly changing. "Krupp" is a magic word, and every nation has had its attack of this kind of croup; but the President of the Bethlehem Steel Co. recently declared that the "Krupp naval gun is the poorest in the world, because battleships have passed beyond the antiquated crucible steel gun." Again, the aëroplane, as the guide of the gunner, and the submarine, have pulled in opposite directions; the former urges on the increasing size and range of guns, while the latter demands smaller and quicker-firing ones. Our *New York* and *Pennsylvania* battleships will carry 14-inch guns; the next class, 16-inch guns; but these are criticised for various reasons, and the class for next year, it is insisted, must return to 14-inch guns. Which shall it be, great guns or small; how great and how many?

Projectiles, too, have grown from shot to shells, and shells from 100 pounds to 850 pounds in explosive charge. A motley crew of *ites* and *ates* have sprung up in laboratories to fill these shells with *explosives* that will make them "irresistible"; and gases are fast replacing shot and shell on battlefield and intrenchment.

To meet this challenge of shell and gas, the hulls of battleships have been made "impenetrable" by sheathing them in *armor,* which has radically changed its substance at least three times, and three times has increased in thickness from 4½ to 14 inches or more; while the men who fight on shipboard or in trench equip themselves with helmets, breast-plates and masks. And now that scientists and inventive wizards have been mobilized in all the military laboratories of the world, we may expect to see perfected some device for utilizing such forces as "atomic energy," which will wage war to extermination, and bring peace on earth by making it a desert.

What Revolution Will This War Create?

What revolution in naval warfare this present war may accomplish, no scientist or romancer is bold enough to prophesy.

The Crimean War revolutionized naval warfare by producing iron-clad and breech-loading guns with rifled bores. The American Civil War produced the epoch-making revolving turrets. The Russo-Japanese War ushered in another revolution by creating the dreadnought, 12-inch guns, and a firing range of 12,000 yards. The present war has already given us the submarine, the submarine battleship, and the aëroplane as great fighting machines. Fifteen years ago, a rear admiral, the leading member of the Board of Construction of the United States Navy, brushed aside the advocacy of submarines and airships with the unanswerable argument that "swimming was intended for fishes and flying for birds, but neither for men." Within this short space of time, men have learned both to swim and to fly so fast and to fight so fiercely under water and over land, that the fish-men and the bird-men give fair promise of doing away first with the warriors on the surface of sea and land, and then with each other. In this Twentieth Century has been literally realized the seemingly impossible taunt

which the Scythian chieftain hurled at the Persian king, 2,300 years ago: "Unless, O Persians, ye become birds and fly into the air, or become mice and hide yourselves beneath the earth, or become frogs and leap into the lakes, ye shall never return home again, but shall die by these arrows." Thus, Twentieth Century science has enabled belligerent man to transform himself into birds, mice and frogs, as well as into the shark of the sea and the tiger of the jungle. Which and how many of these noble brutes shall we Americans become, in our frantic efforts to "prepare"?

VIII

PREPAREDNESS IN AND FROM THE AIR

THE military experts who declare that the real warfare of the future is to be, not on and under the land, but on and under the sea, are rivalled by other experts who declare that the real warfare of the future is to be, not on and under the sea, but in and from the air. The marvellous inventions of the past ten years have made Darius Green's flying-machine no longer a laughing-stock, and have enabled the belligerents in the present war to fulfill literally Tennyson's poetic prophecy of " the nations' airy navies grappling in the central blue." For example, in an aërial battle in Alsace, twenty aëroplanes engaged; rifles, machine-guns and bombs were the weapons; the ships, or planes, maneuvred for position, dashed in and rammed each other; and finally, one side was defeated, and retreat and pursuit ensued.

CAPTIVE BALLOONS

For centuries, it was deemed a great scientific triumph for men to ascend in lighter-than-air balloons, even though they were blown hither and thither as the winds listed. Our Twentieth Century has developed, not only a dirigible balloon, but a heavier-than-air machine. And yet even the despised balloon has played an unsuspected rôle in the present war. Captive balloons are to be seen at many points on the line of battle, equipped with photographic and signalling apparatus, and acting as the eyes of the artillery. Especially on battlefields where both guns and men are invisible, the captive balloon has proved of vast importance in detecting and reporting accurately the disposition and strength of " the enemy." Slow and sure, as compared with the aviator, the stationary bal-

loon has earned in military service its continuance even amidst dirigibles and aëroplanes.

DIRIGIBLE BALLOONS, OR AIRSHIPS

The dirigible balloons, or airships proper, like those of the Zeppelin, Parseval (or Parzival), Spiess, or La Patrie types, seem not so wonderful as the heavier-than-air aëroplanes; and yet they are marvellous in their way, and bear an incalculable promise of military efficiency. Acting on the principle that if might is right, dynamite is more right, the airship drops bombs on warship, camp or fortress. It participates prominently in the campaign of "frightfulness," which is designed to distract the enemy's thoughts, prevent him from concentrating all his energies and resources on offensive warfare and bring pressure from his own terrified people at home to demand a cessation of the war.

Equipped with 100-horse power, six-cylinder engines, or 510 horse-power in all; supplied with fuel for twenty-four hours at top speed, or for 96 hours at normal speed; maintaining a speed of sixty miles an hour; carrying a load of seven to ten tons and a gondola for militant air-men and for a shell-firing anti-aircraft gun; and furnished forth with death-dealing bombs; such is the military airship proper of our time. Developed from the original cigar-shape into a fish-like form, and painted a leaden gray, or an "invisible green," they fly, like veritable messengers of death, in the darkness of the night, when on their raids. These raids have proven that England's sea-girt, navy-encircled, fortified coasts and cities are not immune from an aërial fleet. Dirigibles have disputed also England's mastery of the ocean, having overhauled and stopped at least one ship at sea.

Another novel use made of the dirigible airship is the transportation of machinery from Austria-Hungary to Turkey, by which shells were to be manufactured for the defense of the Dardanelles. A dozen of the largest Zep-

pelins, each carrying from three to four tons of machinery and making two or three trips of 280 miles each, across Bulgaria, are said to have performed this feat of aërial transportation.

DEFENSES AGAINST DIRIGIBLES

The advent of these "dreadnoughts of the air" has caused the invention of giant search-lights and of reversed megaphones, and microphone listening-stations, for their discovery; of various types of guns, with exceptionally wide angles, or mounted on lofty towers for their destruction; and especially of "aërial torpedo-boats" for their annihilation. This novel torpedo-boat is small in size, though carrying large torpedoes or bombs, and dispenses with an aviator's presence, since it is mechanically adjusted before it is launched in the air. Thus, like "a torpedo with a brain," it flies and guides itself by means of a gyroscopic stabilizer, until the moment is reached for it to fire its torpedo or drop its bomb. The torpedo or bomb is released by a time-clock arrangement, and has been fired or dropped accurately as far distant as twenty-five miles from the torpedo-boat's starting point. The cost of these air-boats, complete, is about $10,000, and many hundreds of them have been built and used against Zeppelins and for other purposes. A numerous fleet is reported to be now building for an attack upon the Turkish forts in the Dardanelles.

Another defense called forth by the dirigible airship is a small hydrogen balloon, which lifts a high explosive and inflammable fuse. When Zeppelins are sighted, these balloons, attached to fine wires two miles long, are released and, shooting up above the Zeppelin, cause a contact with the wire and balloon and explode the charge.

These various devices have caused Zeppelins, which, before the war, had a radius of 1,000 miles and carried several tons of bombs at a height of 2,000 feet, to shorten their radius and to fly at a height of 7,000 feet, thus pre-

venting them from carrying, on their long raids, more than one ton of bombs.

But in spite of air-guns and other devices for coping with the airship, the cities of Europe are living under a reign of mental terror and of physical darkness at night; and their inhabitants are resorting to bomb-proof cellars, or to the use of respirators for the nullification of asphyxiating gases diffused from airship bombs.

AËROPLANES

Spectacular as is the airship, the aëroplane is the favorite child of this century. Three types of these have been developed with success, namely, the monoplane, the biplane and the triplane. The monoplane, with but one supporting plane, has become famous because of the military exploits of the German *taubes*. Far from being doves of peace, these doves flock with the Hohenzollern eagles of various kinds and have made many a destructive raid into France, as far as and beyond Paris.

Biplanes, with two supporting planes, one above the other, and triplanes, with three supporting planes, have been added to the aërial navies, especially of France, and have enabled those navies to more than duplicate in the air the biremes and triremes of the water-navies of ancient Greece and Rome.

When the present war began, aëroplanes were used chiefly for scouting purposes, and they are still indispensable for those purposes; but one year ago, they were small and light-armed, and were not very formidable as fighting machines. Equipped with only a 27 horse-power motor, and able to carry only a four hours' supply of gasoline as fuel, their radius of action was little more than 200 miles.

Today, huge biplanes, or "superplanes," or "dreadnought war-planes," are being built and used, equipped with twin motors of 160 to 200 horse-power each, carrying a fuel supply for nearly twenty hours, with a rate of

speed of nearly seventy-five miles an hour, and a radius of action of nearly 1,500 miles. If fuel alone were carried in these biplanes, they could cover the distance of 1,900 miles across the Atlantic from Newfoundland to Ireland; but an important part of their cargo is a ton of dynamite or other explosive, which is used for destroying bridges, intrenchments, fortifications, railroads and other lines of communication. Admiral Fiske testified before a Committee of Congress last winter that a hostile fleet need approach to within only 500 or 600 miles from our coast in order to launch a successful aëroplane expedition against us for the purpose of dropping bombs on our cities.

In Germany, England, Russia and Italy many huge war-planes are under construction or already launched, and, under the names of *Kolossals, Ilja Mourametz, Destroyers, Aërobusses,* etc., are beginning to play a fearful rôle of destruction in the great war.

Already, the small aëroplanes have accomplished much in a military way besides their principal service of scouting. As scouts, they have headed off many an airship attack upon London and Paris, and were instrumental in preventing Von Kluck's army from being attacked by a flanking force, and in causing its retreat from Paris. Besides such services, they have fought each other, having as many as 40 battles in 18 days; they have dropped explosives weighing from 300 to 400 pounds on the Zeppelin base at Friedrichshaven, the hangar at Evere, Belgium, the submarine bases at Zeebrugge and Antwerp, the Krupp works at Düsseldorf, the fortifications of Goritz, the asphyxiating gas base at Dornach, the railroad station and electric power house at Mühlheim and on towns of varied importance like Cologne, Cuxhaven and Karlsruhe, in Germany, Bari in Italy and towns and cities in England and France, including London and Paris. A French aviator dropped a bomb on the largest coal depot on the Rhine, located at Strassburg, and caused the

destruction of 4,000 tons of coal and endangered 20,000 more tons and the city of Strassburg itself. Another set fire to a powder magazine in Southern Baden; a squadron of thirty-five shelled a large munition depot near Calonne; an Austrian flier destroyed by bombs a squadron of three Russian aëroplanes; another flew above the mountain ramparts of Montenegro and caused havoc in one of its supposedly inaccessible towns; and a veritable *fleet* of 62 French aëroplanes *bombarded* a munitions plant at Saarlouis in Rhenish Prussia, while another, of 84 planes, bombarded German intrenchments. Two French and two English aëroplanes attacked and destroyed a Zeppelin; Russian aëroplanes have guarded the coasts of the Black Sea; German aëroplanes have acted as eyes of the submarines and have guided them in their attacks on merchantmen, destroyers and cruisers; the warship fleets of the warring nations are protected by them from hourly danger of attack from submarines and floating mines; aëroplanes have guarded and guided the naval attacks in the Dardanelles, and convoyed troops across the English Channel; and, to cap the climax of seeming romance, a British aviator bombarded and sunk a submarine moored in the mole at Zeebrugge. A short advance over this will enable an airman to dive like a fish-hawk beneath the surface of the sea and, clutching a submarine in his talons, fly away with it to his eyrie!

So impressive has been the work of aëroplanes that it is seriously proposed to establish in Great Britain a Ministry of Aviation, to construct *thousands* of aëroplanes and with them to destroy the Krupp works at Essen, batter down the bridges over the Meuse and the Rhine, and thus prevent the daily transit of 2,160 trains laden with food, ammunition and reënforcements for the German armies in the West.

So efficient is the aëroplane of today in the destruction of defenses, the demoralization of armies in the field, and the paralysis of lines of communication, as well

as in scouting, that military experts declare that no army or fleet, no matter how strong and completely equipped it may be, can dare to move unless it has secured command of the air. As one of these experts puts it: "Every military and naval authority in Europe now recognizes that a navy without aërial eyes is as helpless as a submarine without a periscope; an army without aërial scouts can be corraled and slaughtered like a herd of sheep; a harbor or naval station is at the mercy of every puny submarine and cruiser."

With such views prevalent in Europe, the statement of Orville Wright is credible that as early in the war as November, 1914, the British were turning out planes at the rate of sixty per week, and that by May, 1915, they had constructed new planes to the number of 1,560. Both France and Germany have pushed on aëroplane construction with feverish rapidity. How rapid it was in Germany before the war may be estimated by the fact that constructors increased them from 20, in 1912, to 50, in 1913. American manufacturers are adding their hundreds of planes to the belligerents' large stock. For example, on a single trip from New York to Europe, the *Baltic* carried as part of its cargo 197 aëroplanes, valued at $600,000. Orders for aëroplanes to the value of $15,000,000 had been placed in the United States by the Allies before the first six months of the war had passed, and two more orders, each for 1,000 planes, could not be placed on account of lack of facilities for manufacturing. German manufacturers of aëroplanes have also revolutionized their equipments and methods, and have been constructing more than 100 planes per week, with greatly increased motor power and with "pusher" instead of "tractor" propellers.

AËRIAL TORPEDO-BOATS

Already an aërial torpedo-boat has been patented, which will be to the airship what the submarine is to

the superdreadnought. This boat, equipped with a Whitehead torpedo having a range of 10,000 yards, is designed to swoop down at a distance of some five miles from a fleet of warships and, dropping a torpedo in the water, set its machinery in motion and send it at a speed of more than forty knots an hour towards the doomed ship. Such boats can be used either in open waters or in land-locked harbors (like that at Santiago de Cuba), and may yet be able to launch torpedoes in the air against the superdreadnoughts of the firmaments!

HYDROAËROPLANES

There are authentic instances in history where cavalry and infantry have fought sea-battles, and ships have battled on the land. But these episodes have been eclipsed by the hydroaëroplane of our time. This amphibious machine is well called the connecting link between the army, the navy and the air-fleet. It is capable of alighting upon, traveling on, and rising from, the water, and of flying over land and sea. There are ordinary hydroaëroplanes, for use over land and on small bodies of water; and sea-planes, especially designed for use at sea. The former are designed to give eyes to the army, and the latter to give wings to the navy. The sea-planes can put out from the shore, or be launched from a ship, or rise from the water. Their uses are varied and important,—so important that no warship is considered complete unless it carries and uses them as regularly and normally as it carries and uses small boats. They are three times as fast as cruisers, and, equipped with trained observers and wireless apparatus, they are launched from a ship's side and sent on scouting expeditions of a hundred miles, communicating their discoveries by means of wireless over a radius of fifty miles from their base. As "kingfishers of the submarine," while they are soaring at an altitude of 300 to 500 feet above the water, they can detect a submarine boat or mine, even when

these are submerged to the depth of from 150 to 200 feet. Then, far outracing the submarine, they can report its presence to warships and enable them to escape or to destroyers and enable them to pursue it. Mounting high in the air from a ship's side, the hydroaëroplane directs the firing of the gun; both when the mast-head spotters cannot secure or have lost the range, because of distance, and when indirect firing is necessary, as at the Dardanelles. It reports to landing parties the nature and location of defenses, and aids in the attack by shelling, from the air, defenses, troops, depots and transports. A fleet of them have even set forth from hangar-ships at sea to attack forts and naval bases. Independently or together, they sink submarines, merchant-vessels and transports, and greatly harass even men-of-war.

For coast-defense purposes, the aëroplane of all kinds is widely used. It launches forth into the air from shore, mounts high above the land, or flies far out over the sea; and then, returning at rapid speed to base, or utilizing its wireless outfit, it reports the presence of warships hidden below the horizon from observers on even the highest points on shore. By means of signals, such as the dropping of smoke-bombs, it can direct the fire of shore batteries and forts upon warships long distances at sea.

THE OBSOLESCENCE OF AIRCRAFT

Meanwhile, rapid as has been the development of aviation, the obsolescence of aircraft has been even more rapid; it has far exceeded the rate of obsolescence of the dreadnought, and will doubtless continue at the same rapid rate for some time in the future, and especially until the end of the present war. Frederick A. Talbot, the distinguished aëronaut of Great Britain, declares: "The first year of the war has completely revolutionized the design, equipment and methods of operating the aëroplane. Will the second twelve months' campaigning bring about any further developments equally startling? The

air-machine is in the melting-pot. During the short span of a single year, the aërial fleets of the protagonists have been completely remodeled and rebuilt; but it is safe to assert that the further lessons which remain to be learned will exercise just as far-reaching influence and contribute to the production of still more wonderful warships of the air."

There is another factor of obsolescence which should receive some consideration, namely, the changing rules of the game. What kind of aërial warfare in the future will be permissible to civilized nations? Will they content themselves with the destruction of cities by means of bombs or barrels of inflammable oils, hurled from airships? Or will they transfer the "gas warfare" of the trenches to the heavens, and hurl down projectiles filled with asphyxiating gases to exterminate the inhabitants? The decision would make a difference in the type of "adequate" aircraft. It might therefore be wise to wait until the new rules of the game have been issued, so as to avoid putting our money on the wrong horse,—or bird.

AËRIAL PERSONNEL

As to the problem of training a sufficient number of aëronauts for such a vast fleet of airships, Mr. Orville Wright admits that it is, even for only 2,000 machines, "a very serious problem. There should be," he says, "at least three men for each machine; and of course, at first, the dearth of machines would render the training process very slow. The small number of available officers, also, must be considered." The number of aviators in our army and navy at present is less than 100, instead of Mr. Wright's desired number of at least 6,000.

To meet this demand, the government is being urged by the aëro clubs to establish aviation schools,—"on the Atlantic, Pacific and Gulf coasts";—and meanwhile, the Aëro Club of America is preparing to open an "aviation

center" at Sheepshead Bay, where sportsmen and business men are to be trained in the airman's craft. Concrete hangars, provided with steam heat, electric light and all modern conveniences for flying during both winter and summer, are to be opened in the Spring of 1916, and daily training will be given, supplemented by weekly meets.

The Aëro Club of America has also turned its attention to the States and large cities, and is collecting a fund of $500,000 for the purchase of aëroplanes to be used by the National Guards and the Naval Militia. The Aëro Club of Pennsylvania is raising a fund of $50,000 for "the complete aërialization" of Pennsylvania, New Jersey and Delaware. Aëronauts are to police this aëronautical zone, with the aid of wireless telegraphy, and to report the passage of all aircraft as well as the approach of "the enemy" on the ocean. Its fleet of aëroplanes and hydroaëroplanes is to form "the first line of aërial defense" in time of war; and in time of peace it is to afford opportunity for instruction in aëronautics for militiamen, marines and civilians. The appeal issued by the Aëro Club to the public for contributions to this fund, says: "Contributions are expected from all persons who realize the necessity for adequate defenses for this country. The huge air-fleets of France and Germany were made possible when, in 1912-13, the French and German people, through popular subscription, raised respectively $1,222,969 and $1,808,606." Among others responding to this appeal, is a lady of Providence, Rhode Island, who emphasizes her trust in aëroplanes by contributing $7,500 for the purchase of one. The Philadelphia and other newspapers welcomed this plea in vociferous editorials, and confidently predicted that "aërial preparedness" is going to be as vital an element in national defense as are military and naval preparedness on land and sea." The National Guard of Pennsylvania has looked askance at the project; but the Navy Department has

provided ground at League Island for its aviation center, and has welcomed the assistance of the amateur aëronautical experts in training the navy-yard men in the use of aircraft. The Navy Department has also begun the policy of providing the Naval Reserves of the States with aëroplanes for the instruction of aëronauts, two of these having already been sent to the battalion in Camden, New Jersey, and an aviation station and armory to train aëronauts having been arranged for in St. Louis.

WHAT IS ADEQUATE AËRIAL PREPAREDNESS?

Such are some of the military uses of the aircraft of our time. Many of the prepareders of America, taking note of these, insist that "mastery of the air" is the best, perhaps the only effective, preparation available for us. They urge that, as England is the Queen of the sea, and Germany the King of the land, now is the time for the American Eagle to become in fact the Birdmen's King.

Our Unpreparedness

What, then, is "adequate preparedness" along this line? How much of it have we today? Numerous experts assure us that we are absolutely unprepared. For example, Mr. Orville Wright declares: "It would be folly for the United States to engage in war today with any of the European powers, owing to our utter unpreparedness in the line of aëronautical equipment. Two years would be required for this country to acquire the aëroplanes needed to assure protection, *even in time of peace*. "Another aërial expert, the president of an aëro club, declares: "The American navy has no aëroplane scouts worthy of the name. In case of war, our fleets, as they are now constituted, would be sent to face certain destruction at the hands of fleets supplied with aëroplane spotters. On land, the story would be the same; masses of troops could be concentrated to be hurled against our lines, while we remained utterly in ignorance

that an attack was to be made." Senator Lodge declares that we are wofully deficient in aircraft, and points to the fact that we have no dirigibles and only twenty-five aëroplanes,—thirteen for the army, only nine of which are even claimed to be first-class,—and twelve for the navy, eleven of which, according to an aviator recently returned from Europe, are altogether unfit for use.

Mr. Henry Reuterdahl asserts: "The United States Navy has fourteen aëroplanes for scouting. Should war break out to-morrow, none of the machines would be capable of continuous military duty; there would not be one which could accompany the fleet to detect submarines or mine-fields. Recently, one wabbled to earth and killed the aviator. The country where the aëroplane was born is the twentieth power in aëronautics."

In contrast with us, France had, at the beginning of this present war, 22 dirigibles and 1,400 aëroplanes; Germany, 40 dirigibles and 1,000 aëroplanes; Russia, 16 dirigibles and 800 aëroplanes; Great Britain, 9 dirigibles and 400 aëroplanes; Belgium, 2 dirigibles and 100 aëroplanes; Serbia, 60 aëroplanes. During the war, the European nations have enormously increased their supply of aëroplanes, Great Britain, France and Germany each being now credited with 10,000! On the Franco-Belgian battle-line, there are said to be 1,500 French, and 1,000 British aëroplanes, and still the commanding generals are clamoring for more. The productive capacity of France and England has been increased to 1,000 aëroplanes per week; while in the United States, all our public and private facilities can turn out only 300 to 400 per week.

Coast Defense

When we compare our present preparedness along this line with our alleged needs, the contrast is quite as striking. In addition to the cloud of aëroplanes, as numerous as the locusts in Egypt, that is demanded for army and navy scouting purposes, our coast-line, we are told, must

be guarded primarily by flying-machines. "These are dark days for the old order of things," an aviation expert declares, "and there are persons who hold in greater likelihood the landing of troops from transports at out-of-the-way places upon our coasts than an attack by a battle-fleet upon the defenses of our seaports. Our coast-line, bounding two oceans, cannot be fortified in the strict sense, nor do fortifications play the part they once did. These long stretches of seacoast and the line of the Panama Canal,—so tender a spot that no one in the service willingly talks about it,—must be protected by a combination of mobile land forces and sea power. To this combination, the aëroplane brings the third indispensable element; it gives land and sea forces their highest efficiency, and permits them to coöperate." In the light of this testimony, it is proposed to establish alongshore radio-receiving stations of wireless telegraphy, 100 miles apart, each equipped with one or more aëroplanes, these also fitted with wireless apparatus. This plan of coast-patrol is endorsed by a fellow-expert as "a tragically important link between the silent, newsless sea and our apprehensive forces ashore." With 21,000 miles of coasts to protect, this plan would require 210 stations, and from 210 to an indefinite number of aëroplanes.

But this is far from being the whole story. The fortifications along our coasts without aëroplanes are declared to have become practically useless, for the reason that "whether afloat or ashore, a gun that is aërially eyeless is blind in the modern sense of the word. With its rapidly increasing bore and heightening angle of elevation, the growing gun is fast passing in range beyond the ability of the observer aground to spot its shots." Hence aëroplanes are demanded so that the necessary miles of range may be added to the gunner's vision.

As aids to the army, to the navy, and to the coast fortifications, and for direct attack or defense, an indefinite and innumerable fleet of airships is demanded, in order

to compete with the other nations and to supply ourselves with "adequate defense."

Our Programme for Dirigibles

What are we doing to supply this demand? Well, the Navy Department saved last year, by economical administration, the sum of $12,000,000, which it plans to expend in the building of an aviation station at Pensacola, Florida, and the purchase of high-class aëroplanes. Besides this, Congress appropriated at its last session, $1,000,000 for the use of the navy's Bureau of Aëronautics, and $300,000 for the use of the same bureau in the army. This sum was regarded as but "a drop in the bucket," but the Navy Department determined to "make a beginning" by asking for bids on *two* dirigibles. These dirigibles, having received from aëroplane scouts information as to the approach of submarines or mines, are designed to fly forth and drop 50-pound bombs, fitted with fuses to explode on contact with the submarines, or after sinking to a certain depth. It is not hoped, of course, to become "adequately prepared" by means of these *two* dirigibles; for they are not to be of the rigid type which alone is now deemed efficient, and, according to the Assistant Secretary of the Navy, they are to be "of the smallest size that will be serviceable for training and experiment, to develop officers and men for this service and obtain the necessary experience to produce a large dirigible fleet." They are, in fact, to be only "baby Zeppelins," and since their purchase is designed, according to the Assistant Secretary, to encourage the development of the manufacture of dirigibles in this country, it may be regarded as another and a novel form of "protection to infant industry." How baby-like they will be can be guessed from their dimensions of 175 feet in length, 50 feet in height, and 35 feet in width, as compared with a Zeppelin's dimensions of three times that size. Like President Jefferson's "warships," which were to be run

out of the water on wheels and kept under sheds when not in use, these "war-planes" are to be taken apart and their parts conveyed on naval transports or even on a battleship.

In addition to providing for the two dirigibles, the Navy Department has contracted for six hydroaëroplanes, of the biplane type, each to carry two persons, guns, ammunition, wireless outfit and a certain amount of armor protection, and to have a speed of from 50 to 80 miles an hour. The bids on these ran from $6,600 to $18,000 for each machine.

The building of new aëroplanes has been deferred pending the development of a motor entirely satisfactory to the government.

Scientific Preparation

A portion of the congressional appropriation of last year, namely, $5,000, is to be devoted to the expenses of a National Advisory Committee for Aëronautics, which is to consist of not more than twelve scientists, and is "to supervise and direct the scientific study of the problems of flight with a view to their practical solution." To aid this Committee and the new Advisory Committee of the Navy, a new society, called the American Society of Aëronautic Engineers, has been organized, with 200 charter members. The members are either aëronautic engineers or flying experts, and forty of them are licensed pilots and aviators. Four directors of this society are appointed by the Navy Department and the War Department, and one each by the Post Office Department, the Smithsonian Institution, the Weather Bureau, the Bureau of Standards, the Massachusetts Institute of Technology and the University of Michigan,—the last two institutions having introduced into their curriculum a course on aëronautics.

Our Needs

Reviewing the demand for "preparedness" along the line of aviation, it is seen that it includes a vast and indefinite increase, even in time of peace, in the number and size of dirigibles, aëroplanes and hydroaëroplanes, for the army, for the navy (and for each of its capital ships), for the coast fortifications, for the frontier patrol and for the Panama Canal and the Island possessions in the Atlantic and Pacific; a chain of aircraft bases and wireless outfits at distances of 100 miles on both oceans and the Gulf; an auxiliary organization of hangar ships; the training and equipment of the State militia and Naval militia for aëronautical service; scores of special corps of trained, professional experts, and a reserve of trained pilots; the establishment by the Post Office Department of 2,000 aërial routes, so that it may create a corps of civil aviators who could be recruited for military purposes in time of war; the registration of all amateur and professional aviators in private life, so that they may be speedily corraled and mobilized in time of war; the development of manufactures that can produce the right kind and adequate number of motors; the establishment of many air-bases and innumerable hangars; and the development, manufacture and purchase of aëroguns and a whole arsenal of new weapons of attack and defense.

As to the number of aëroplanes needed, Mr. Orville Wright testifies: "A conservative estimate of the number of machines needed by the navy alone, based on information given by naval officers, places the figures somewhere around 1,000. Some of the best informed officers have told me that 1,300 would be required. Allowing that the navy needs the higher figure, and by estimating the requirements of the army at 700, the United States should have, to insure reasonable protection *in time of peace,* 2,000 machines. These would suffice as a guar-

antee of safety, in case of sudden war, while we brought our equipment up to the proportions demanded by the occasion."

"The occasion" hinted at by Mr. Wright and all other prepareders is, and must remain of course, delightfully indefinite. But when it is recalled that the average "life" of aëroplanes in the present war is about *seven hours of actual flying,* the imagination may perhaps estimate by the use of very large figures how many aëroplanes would be synonymous with genuine preparedness for a war with a first-class power at some time in the indefinite future. The imagination may be aided in this estimate, also, by the alleged fact that France has at present as many soldiers in the air as we have on the ground!

Comparing the programme of *adequate* preparedness in and from the air with our present equipment, our present rate of progress, the equipment of our "possible enemies," and our means of attaining the goal, it is plain to every man of solid understanding, with his feet on the ground and his thoughts in the heavens, that it would be a long, long way for us to go to the Tipperary of complete aërial defense. As to the cost of carrying out this programme, a faint idea of it may be gained by reflecting upon the single item of one aëroplane, which as it is made today costs about $10,000, has a "life" in war-time of seven hours, and is liable to become as useful as a last year's bird's-nest, within a small fraction of a year, by the development of some super-aircraft. The favorite statement of prepareders who demand peace or defense at *any* price that this cost only equals the expense of a single shot from a big gun, or is only one-fifteen-hundredth of the cost of a superdreadnought, is not convincing or reässuring; for a man who is required to pay $1,500 for a suit of clothes is not consoled by being charged $1.00 apiece for hat-bands and obliged to purchase ten or fifteen thousand of them.

IX

RESULTS OF PREPAREDNESS

THIS brief analysis of the programmes for military preparedness which have been spread before the American people proves them to be wholly indefinite, purely theoretical, endlessly extravagant, and absolutely—in fact, ridiculously—inadequate.

But there must be no misunderstanding of the full significance and certain results of getting down to business on the military programme. If we give ourselves whole-heartedly to it, we must bid farewell forever to those American ideals of peaceful industry, of genuine education, of real democracy, and of international relations dominated by law and justice. The military powers of the Old World and of all history have shown us but too plainly by precept and example the necessary consequences to industry, education, democracy, and international morality, of a whole-souled devotion to a consistently "adequate" military programme.

Both reason and recent experience have burned in upon us the lesson that adequate preparedness includes the preparation of plans for making war. The "campaign" must necessarily be mapped out beforehand, and its strategy and tactics decided upon in advance. The German officers' clubs, with their debates on "the best plan" and prizes for its author; with their incessant construction and criticism of "projects of attack and defense," and their habitual and enthusiastic toast to "The Day" when these projects might be tested, have taught this lesson beyond the shadow of a doubt. The "agreements" and "arrangements" between Great Britain and France have taught this same lesson, with the further

one of the futility of anything short of absolute adequacy in military preparedness. Even Germany, with its phenomenal, *apparent* military success, is learning anew that Kant's dictum, "we cannot grasp the absolute by the wool," is true in the military and material world as well as in the intellectual.

Many events have proven the truth of reason's prophecy that on the occasion of every international dispute the country "prepared" with big armaments rattles the sabre in its sheath, or draws the sword from its scabbard, in its effort to back up its diplomacy and incline "justice" to its side. In this era when the whole world is a neighborhood, such preparedness on the part of one nation is emulated by the others who regard the iron fist as a necessary concomitant of their own diplomacy.

But "preparedness" instils the poison of militarism not only into international relations; it militarizes national and individual life and character as well. "The Earth rests not more securely on the shoulders of Atlas than Germany on her Army and Navy": so said one of the prime supporters of military preparedness, the Crown Prince of Prussia. "After all," said the editor of a great London journal, "the British Empire is built up by good fighting by its Army and Navy. The spirit of war is native to the British race. . . . Only by militarism can we guard against the abuses of militarism." Such are the natural fruits of military preparedness; and their counterparts are already pressing upon public attention in our own Republic.

Military preparedness, which, to be adequate, must necessarily be based on despotism in the army, has caused despotism to be retained in the monarchies of Continental Europe, and to be revived in many open and insidious ways in its Republics. In practice, the rights of freemen have been ruthlessly disregarded in Germany and in Great Britain alike, under the stress of providing a greater preparedness; in theory, the Germans insist

that efficiency in military preparedness is possible only when power is strictly concentrated, and the English have grown doubtful as to the possibility of its achievement in a democracy. In Germany, a member of the Reichstag voted against the military budget; his fellow members shouted to him, "We won't permit the supreme military authorities to be criticised"; and the government promptly ordered him to the trenches. In England, an unprecedented campaign for enlistment has come to the verge of conscription; the state-church has been ordered to "preach more patriotic sermons"; and the workmen in fuel and munitions plants have been made to feel that they are the wards of the government.

One of the prime characteristics of the progress of civilization is a growing respect for law and for the sanctity of human life; and yet *our Republic* is summoned to prepare to engage in international anarchy and in the wholesale destruction of human life. One of our leading prepareders, in a public debate in Boston, pictured Uncle Sam with a chip on each shoulder (the Monroe Doctrine and Mongolian Exclusion), and with both arms (the Army and Navy) in a sling. To such an ideal of our Republic does the demand for "preparedness" logically lead. Shall it be permitted to eclipse the traditional ideal of Uncle Sam with international rights on one shoulder and international duties on the other, with one hand bearing the torch of liberty, education and industry enlightening the world, and the other pressing upon the nations the scales of international justice?

X

THE AMERICAN PROGRAMME

THE American people have not yet become a bloodthirsty, a militaristic nation. They will assuredly reject with scorn and contempt the irrational, anarchistic, inadequate, uncivilized, unchristian, and un-American programme of the militarists, and accept gladly and eagerly the rational, legal, adequate, civilized, Christian and American programme of the Madisons, Hamiltons and Washingtons of our time. We have, once before in our history, faced the same great question and answered it aright.

A. THE GREAT EXPERIMENT OF THE CONSTITUTION

In the gloomy "critical period" of our history, from 1783 to 1789, the burning question arose: Shall each of the Thirteen States build up its armaments on land and sea, to the utmost of its power, and by means of them defend its soil from invasion by the other, jealous, rival, hostile States? Or, shall the great experiment of the Constitution be tried, by means of which inter-State disputes may be settled by judicial process, and the armaments of each State be reduced to a minimum?

The answer was not so simple and easy and matter-of-course as it appears today after a century and a quarter of successful operation on the part of the Constitution. Undoubtedly, as the Founders themselves acknowledged, the Constitution was "wrung from the grinding necessities of a reluctant people." There were many men then, in the various States, as there are in the various nations today, who declared that they would not entrust the safety of their States and homes to a "mere scrap of

paper"; and insisted that the "good old plan" of adequate armaments and preparedness should be adhered to, and the new-fangled follies of the mollycoddle pacifists and poltroon legalists should be rejected. Fortunately for America and the world, the Founders of the Republic triumphed, and an end was put forever within the States of the Union to that policy of adequate armaments and preparedness which would inevitably, if allowed to continue, have made of the Constitution a mere scrap of paper, just as the adequate armaments and preparedness of today have made mere scraps of paper of treaties between the nations.

Of course, it is wholly undesirable and impossible for the world today to establish a national Union such as was established in 1789 between the States. The day for a world-empire, or even a world-republic, has probably passed away forever. But it *is* possible, practicable and mandatory for the world to adopt unreservedly and adhere to unwaveringly the rational, legal, adequate, civilized, Christian and American programme which it entered upon at the two Hague Conferences.

B. THE PARTS OF THE PROGRAMME

This programme is not vaguely indefinite and purely theoretical, as is that of the militarist. On the contrary, every part of it is clear-cut and every part of it has been put into successful operation. Thus, back of it is the convincing force of sound reason, and the overwhelming proof of successful practice. Let us examine it briefly, and at the same time consider the relation of adequate armaments and preparedness to the programme as a whole and to each of its parts.

Its parts are four in number, namely, the limitation of armaments, the exclusive use of mediation and good offices, of international commissions of inquiry, and of international arbitration.

I. THE LIMITATION OF ARMAMENTS

America's Experience

The limitation of armaments has been tried for a century with pre-eminent success between the United States and the British Empire, and for a quarter-century between Chile and Argentina. Its adoption in some form, —preferably the conversion of all national armaments into an international police force,—is absolutely essential to preventing the other parts of the programme from being torn into scraps of paper. The whole world of civilization, within both the belligerent and the neutral nations as well, is looking forward to the time when, after the demolition of adequate armaments in the present Great War, an end shall be put forever to the persistent and frightful competition between the nations in the building up of adequate armaments, of preparedness, on land and sea. And even the terrible evils of this frightful war are borne with some equanimity in the prime hope of humanity that God may bring out of these evils the total destruction of the nations' means of mutual destruction.

America's Opportunity; The Obstacle of Preparedness

Here, then, will be the first great opportunity of America to lead the world; but this opportunity will belong only to an America with clean hands and pure heart. In that future conference of the nations which is to put an end forever to competition in the building up of armaments, what possible influence for good can the American delegates exert if their country should have itself adopted in earnest the military programme? Would not the other delegates say, with entire justice and finality: "While we were destroying each other's armaments, you seized the opportunity of building up your own; go to, we will go and do likewise"? So far from influencing a world conference to limit armaments, the

United States would give such an impulse to competition in the building up of armaments as the world has never known before! And it would thus become its own chief opponent in leading the world to adopt the rest of the truly American programme. It would be as if Virginia, the home of Madison and Washington, or New York, the home of Hamilton, had said to the other States: "Let us adopt a judicial means of settling all disputes between us"; and had, at the same time, persisted in building up armaments on land and sea.

At the first Hague Conference in 1899, Russia earnestly advocated the limitation of armaments; but at the second Conference in 1907, after Russia's war with Japan had impelled it to undertake an enormous increase in its armaments, it refused not only to advocate limitation of armaments but even to place the subject upon the programme for discussion.

It will take the United States *years,* according to our military and naval experts, to reach even the standard of preparedness set by this present war. Meanwhile, immediately on the close of the war, the third Hague Conference must be held, and the delegation from the United States should be prepared and enabled, by their country's attitude on armaments, to accomplish that limitation of armaments which was defeated at the first two conferences by a reliance upon "adequate armaments," and which a bleeding and panting world will demand with a thousand-fold more imperiousness after the Armageddon that has followed the "preparedness" of recent years.

2. MEDIATION

America's Experience

Mediation and good offices were placed in the programme by the Hague Conferences. They have been tried by the United States scores of times, both before and since the Conferences, and with conspicuous success. On many occasions, Latin-American wars have been pre-

vented or ended by American mediation. Through the good offices of the United States, the Russo-Japanese War,—up to that time the most terrible of modern wars,—was brought to an end.

This means of preventing war is obviously capable of far greater use and success; and it was not only endorsed by the Hague Conferences as useful and desirable, but it was unanimously declared not to be an "unfriendly" act on the part of the mediator either before or after the outbreak of hostilities.

Its Rejection in the Present War; the Obstacle of Preparedness

Why has it not been successful in preventing or ending the present Great War? Because of adequate armaments. It was pressed repeatedly before the war began, but was rejected because of the belief on the part of the respective disputants that they could gain more by means of their adequate armaments. Our own President was prompt and urgent in the extension of good offices and mediation on the part of the United States. His offer was rejected. Why? Because of adequate armaments. Our country and humanity are watchfully and hopefully waiting for a repetition of that offer. When will the opportunity to offer them again and with success occur? When, only when, the adequate armaments of one side or the other shall have been smashed into smithereens.

The unanswerable logic of this proposition is fortified by the mediation at Portsmouth, when it was found possible to mediate only after the Russian and Japanese armaments had been greatly reduced and when the financial resources of the belligerents prevented them from speedily renewing those armaments. As a man must sow what he reaps, a country will assuredly get what it prepares for, whether it be a peaceful adjustment of disputes or war.

A conference of the neutral nations to offer continu-

ous mediation in the present war has been repeatedly urged in and upon the United States, and there is no doubt that it could be summoned and could act with success were it not for "adequate" armaments,—armaments adequate, so their respective possessors believe, to secure "justice" by means of them. Indeed, we have the testimony of the British Secretary of State for Foreign Affairs that even a conference of the belligerent nations themselves could have prevented this war. He places the blame, of course, upon Germany for not agreeing to this conference; but the impartial observer sees behind Germany's refusal the spectre of preparedness on both sides. Sir Edward Grey's words, spoken in Parliament nearly nine months after the war began, were as follows: "The expenditure of hundreds of millions of money and the loss of millions of lives might have been avoided by a conference of the European powers held in London or at The Hague, or wherever and in whatever form Germany would have consented to hold it. It would have been far easier to have settled the dispute between Austria-Hungary and Servia, which Germany made the occasion of the war, than it was to get successfully through the Balkan crisis of two years ago."

Precisely so. The Serbian, or Balkan, or Moroccan, or almost any other "incident," is liable to be made the occasion of war, when athwart such incidents lies the shadow of "preparedness."

3. COMMISSIONS OF INQUIRY

Their Success

International Commissions of Inquiry were also endorsed by the Hague Conferences, and they too have been put into successful practice. Founded upon the principle of ordinary common sense that we should investigate before we fight, it has been found that, in nine cases out of ten, if we investigate we will not fight at all. Among the applications of this rational means of settling

international disputes, may be mentioned the famous incident of the Dogger Bank. On this occasion, Great Britain, Japan's ally and Russia's suspicious rival, was prevented from going into the Russo-Japanese war, by an impartial, international investigation of an occurrence which had destroyed British lives and touched closely British honor.

Their Rejection in the Present War; the Obstacle of Preparedness

How eminently suitable would have been the resort to an international commission of inquiry for the prevention of the present war. This war,—it has almost been forgotten,—was precipitated by the assassination of an Austrian archduke and duchess. Austria accused the Serbian government of complicity in the crime. Here was a question of fact, which an impartial, international commission of inquiry could have readily sifted and reported upon to the satisfaction of the world's public opinion. This rational course was repeatedly urged before the war began. Why was it not resorted to? Because of "adequate armaments." Because Austria and her allies, and Serbia and her allies, believed that they had invincible or irresistible armaments, adequate to secure "justice" for their respective contentions.

4. ARBITRATION

Its Success

International arbitration is another pre-eminently American and rational means of settling disputes between nations, and it is one which has been applied with success many scores of times. One of the proudest pages in American history is that which records the success of scores of arbitrations of international disputes to which the United States has been a party. The Founder of Pennsylvania advocated two centuries ago the creation of an international court of arbitration, whose counterpart was estab-

lished by the first Hague Conference, largely under American initiative and support. The Jay Treaty of 1794 provided for the arbitrations which ushered in the modern history of arbitration; and on the roll of such arbitrations, that at Geneva, which settled the Anglo-American dispute over the *Alabama* claims, stands out conspicuous because of the magnitude of the claims, the bitterness of feeling and the national honor and vital interests involved in the case.

More than two hundred disputes between sundry nations had been settled by arbitration before the first Hague Conference assembled. At that Conference a resort to arbitration was unanimously approved; and at that Conference the very Prime Minister of England who had condemned and derided arbitration as "a quack nostrum of our time," just a quarter-century before, instructed the British delegates to move the adoption of a *court* of arbitration and a regular code of arbitral procedure.

The International Court

This court,—the "Permanent Court of Arbitration," and the first truly international court in history,—was unanimously agreed upon by the delegates and ratified by their governments. Four years later, on the initiative of the government of the United States, it was assigned its first case. A dozen years have passed since then,—only a tiny span in history,—and yet, already that court has settled fifteen disputes between the nations. Some of these disputes have involved grave issues of national honor and vital interests; and before this greatest of earthly tribunals have bowed not only the "little fellows" in the family of nations, like Venezuela and Belgium, but every one of the eight "great powers," with the single exception of Austria-Hungary. The United States repeatedly, Great Britain, Japan, Russia, Italy, France, Germany,—each and all of them have recognized the juris-

diction of the court and yielded to its decision. One of these disputes was between the bitter enemies of a generation, Germany and France; and yet this dispute, like all the others, was settled by the court, and settled so thoroughly that the world has well-nigh forgotten that they ever existed. In fact, of all the two hundred and forty-odd cases of arbitration in history, there has not been a single one in which the award of the arbitral tribunal was resisted! Thus potent is the rule of reason and an enlightened public opinion.

Its Rejection in the Present War; the Obstacle of Preparedness

Now why is it that arbitration did not prevent the present war? Because it did not do so, the work of the Hague Conferences has been condemned and derided, and their conventions called "mere scraps of paper." But here again, as in the case of the other measures adopted at The Hague, the existence of "adequate armaments" has been responsible for its rejection. Of course it could not be successful in preventing or ending the war, unless it were resorted to; and a resort to it, though repeatedly urged, was rejected by the belligerents concerned because of Germany's and of Russia's armies and of Britain's fleet.

Experience as well as reason proves conclusively that "adequate armaments" are inevitably and insuperably opposed to arbitration. At the first Hague Conference, when the Permanent Court of Arbitration was proposed, a German military delegate declared: "Germany will have none of arbitration. It has an army ready to fight at the drop of the hat, and by means of that it will settle its quarrels." A British naval delegate said practically the same thing: "Great Britain has a navy that rules the sea: by means of that it will secure justice. Arbitration is merely a device to enable the other fellow to get ready."

Fortunately, the military and naval delegates were brushed aside, in this matter, at The Hague; the Permanent Court of Arbitration was established; and it has proved its efficacy, in preventing war and enforcing justice, by the unanswerable logic of accomplished facts.

The doors of the Temple of Justice at The Hague were open at the beginning of the present war. The famous Twenty-seventh Article of The Hague Convention for the Pacific Settlement of International Disputes had made it, not merely the right, but the *duty* of the governments, separately or together, to call the attention of the disputants to the fact that these doors stood hospitably open for the rational adjudication of the dispute between them. This duty was fulfilled by various governments, our own included. *But* the Temple of Janus still held the faith and worship of the leaders of the peoples, and that Temple was filled with Dogs of War whose baying drowned the voice of reason. So it has always been, so it must ever be, until those Dogs of War are converted into the genuine watch-dogs of civilization.

5. AN AMERICAN ARMY AND NAVY

But, in the adoption of the true American programme, shall we have *no* army and navy, or keep them inadequate, inefficient, unprepared? No. Whatever we have, we want it to be adequate, efficient, prepared. But adequate for what? For the legitimate needs of a Twentieth Century Republic. For whatever police service may be required of them to enforce national law on land and to suppress pirates or other criminals within the three-mile limit of our shores; for such magnificent sanitary and medical service as has been rendered in the Canal Zone and the Philippines; for such splendid engineering work as has been done at Panama. These are the legitimate tasks of a Twentieth Century army and navy; and for these they should be as adequate, efficient, and prepared as possible.

One of the great advantages of an army and navy used for such purposes is, that with the advance of progress and civilization, the size of the army and navy decreases proportionately to population, and its expense decreases proportionately to wealth.

But let us no longer load ourselves in times of peace with enormous and constantly increasing military burdens in order to prepare for the settlement of disputes between nations by means of war. National armies and navies are strictly national tools, and they should have no place nor function in international affairs.

XI

THE TWO DIVERGENT PATHS

IS it possible that we are going to permit our own beloved Republic to enter upon that foolish, fatal, bloody, brutal path of militarism which has led the nations of today into the abyss,—which inevitably has led and must lead always to the abyss? We are standing today at the parting of the ways. Which shall we take? The irrational, anarchistic, inadequate, uncivilized, unchristian, un-American path of so-called adequate armaments? Or the rational, legal, adequate, civilized, Christian, and American path of adequate justice?

The United States has today an opportunity unparalleled in its history,—in all history,—of answerng this question aright, and of leading the world along the better way.

These, then, are the two paths that stretch fatefully before our country and the world today. Which shall we take, and lead the world to take? Let us make no mistake about it: *We cannot take them both.* We cannot gather grapes from thorns, or figs from thistles. If we sow the wind, we must reap the whirlwind; if we prepare for war, we cannot preserve the peace. No nation can serve *both* the God of Battle and the Prince of Peace. Reason and experience prove conclusively that the military programme, if adopted in earnest, makes impossible the *desire* to adopt, as well as the adoption of, the American programme. And a military programme that is not adopted in earnest is mere foolishness and a criminal waste of money, brains and men.

To lead the world along the American path is difficult? Yes; so have been all of the world's great reforms.

But it is *not* impossible; and there are considerations which make it most promising. If our own great Republic keeps the faith, and reassures the world both by precept and example that it has definitely turned its face away from militarism and towards judicial settlement of international, as of State and individual disputes, then indeed it will be in a position, not only to play a useful rôle in shortening the present war and influencing the terms of peace, but also in persuading the world to adopt the American programme. A generation of groaning under the terrible, increasing and apparently unending burden of competitive armaments; an unknown period of suffering and dying in the throes of the present war; and the prospect of a long future burdened to the earth by the economic, physical and moral losses of this war, will assuredly incline the nations to the better way. The voice of democracy at home and of international law and equity abroad must infallibly and invincibly be heard. Let America prepare now and persist then in giving expression to that voice, which is its natural, its historic, and its destined rôle. Friendships, not battleships; statesmen, not men-of-war, must and can perform this great service to ourselves and to all mankind.

> "Thou, too, sail on, O Ship of State!
> Sail on, O Union, strong and great!
> Humanity with all its fears,
> With all the hopes of future years,
> Is hanging breathless on thy fate!"

The triumph of the American programme will be difficult of achievement? Yes. But consider the alternative. Even the *Prussianization* of our Republic will not suffice to achieve victory over a first-class power in Twentieth Century war. Shall our America be made a Twentieth Century Sparta? *No!* Life under such circumstances would no longer be dear to any true American. Give us liberty,—freedom from tyranny of *any* militarism,—or for ourselves and our Republic, give us *death!*

XII

THE PRESENT CRISIS

THESE, then, are the two paths that have opened up before us. Which shall we choose? In this great national and international crisis, let us recall and act rightly upon those appealing and prophetic words which one of our own great poets uttered in another crisis of the history of our country and of the world:

"Once to every man and nation comes the moment to decide,
In the strife of Truth and Falsehood, for the good or evil side.
Hast thou chosen, O my people, on whose party thou shalt stand,
Ere the Doom from its worn sandals shakes the dust against our land?

. . . . . .

"Was the Mayflower launched by cowards, steered by men behind their time?
Turn those tracks toward Past or Future, that make Plymouth Rock sublime?

. . . . . .

"New occasions teach new duties; Time makes ancient good uncouth;
They must upward still, and onward, who would keep abreast of Truth;
Lo, before us gleam her camp-fires! we ourselves must Pilgrims be,
Launch our Mayflower, and steer boldly through the desperate winter sea,
Nor attempt the Future's portal with the Past's blood-rusted key."

If we can steadfastly sustain our courage beneath the shadow of the "frightfulness" of the present war; if we can follow steadfastly that vision of Peace through Justice which we have seen revealed so clearly, though a century apart, in Philadelphia and at The Hague; then

only can we look forward with hopeful assurance to the realization of that ideal of our Republic which President Wilson has recently portrayed in the following noble words: "It is probably a fortunate circumstance, therefore, that America has been cried awake by these voices of the disturbed and reddened night, when fire sweeps sullenly from continent to continent; and it may be that in this red flame of light there will rise again that ideal figure of America, holding up her hand of hope and guidance to the people of the world, saying: I stand ready to counsel and to help; I stand ready to assert, whenever the flame is quieted, those infinite principles of rectitude and peace, which alone can bring happiness and liberty to mankind."

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